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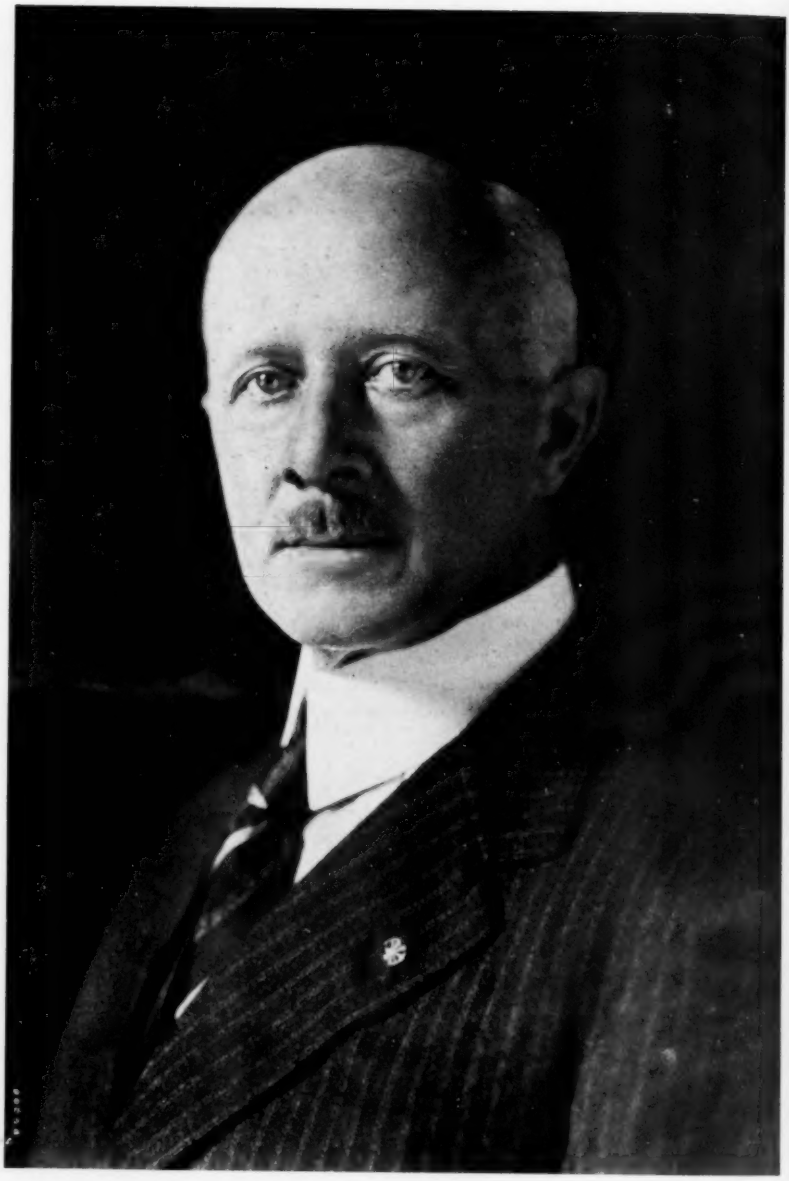

Faithfully yours.
H. W. Mitchell.

VOL. III. JULY, 1923. NO. 1

AMERICAN JOURNAL OF PSYCHIATRY

PRESIDENTIAL ADDRESS.*

BY H. W. MITCHELL, M. D.

Any review of the Association's records during the many years that have passed since the original 13 members united for a common effort, reveals the uncertain temerity with which most presidents have approached this formal duty. As the years pass, the wider aspects of psychiatric activities open an almost unbounded field from which the incumbent may, according to his interest and experience, choose a theme for discussion. In response to a request for advice, a friend kindly stated: "Every man must approach the job of preparing a presidential address from his own historical past and therefore from his own prejudices and special interests." This advice has been accepted as a most excellent guide. Years of service as ward physician, hospital manager, and official duties in the work of this Association, form that past which is common to many of you present to-day. A review of such experiences over a period of many years leaves one in doubt where to begin, how to proceed or where to end. Psychiatric case study ranges from eugenics to post-mortem tissue section. The application of therapeutic and preventive measures offers a field equally extensive. Organized medical work begins in the hospital and extends to formation of an association covering a continent. A history of its common interests and attempts to encourage progress at the beginning proceeds from the simple conferences of a few men to the present time when our membership represents work of all the agencies actively interested in mental diseases. Very few individuals make startling contributions to our progress. Such advance as has been recorded since the formation of our association may be regarded as due to the combined efforts of many workers in all fields of activity relating to psychiatry. The more consistently our rank and file maintain an appreciative concern, in the

* Delivered at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

contributions of the professional, legislative and social workers for the promotion of psychiatric interests, the nearer we shall approach our common goal. Complex problems can rarely be solved by simple methods. Psychiatric questions are not exceptions to the general rule. Increased knowledge is gained slowly and by small increments that represent the patient work of investigation through the years. There is no prospect of revelation in the future that can materially modify this slow progress of psychiatric knowledge.

The early founders of our Association gave their contribution largely in the form of legislation, hospital organization and slowly developing methods of medical and nursing attention that marked the transition of asylum to hospital which is still progressing. The foundation of state hospital systems in the several states called for economy in the use of public funds, the erection and equipment of buildings suitable for the care of mental cases and the development of medical and nursing attention that met the requirements of that earlier period. In all these matters, the Association took an active part, not only by free discussion at its annual meetings, but also through the work of many committees appointed for the special purpose of presenting the most approved ideas and methods of the time, which gave a guiding direction to hospital expansion and legislative acts. Much of this work remains to-day as the permanent basis upon which our present activities are founded. Its strongly worded resolutions, either of approval or condemnation of methods under consideration were often heeded. The rights of patients were safely guarded by legislation framed and advised by the Association over half a century ago. It stood firmly for the local autonomy of the hospital under control of trustees and for medical management. This system under capable central supervision, in the opinion of many competent observers, remains to-day the best system of management yet devised. Not all its advice was accepted on important matters. Insane convicts still remain in many jails, prisons and hospitals; overcrowding of hospitals has not disappeared and until immigration was checked by post-war measures, our shores continued to be flooded with undesirable, mentally deficient and delinquent aliens without any effective check.

This brief and sketchy review of Association action during the formative period of American psychiatry is presented to show that

in these early days the Association as such felt itself under the compulsion of a duty to make its collective judgment a guiding factor in the solution of public questions affecting psychiatry. Greater opportunities for analogous efforts are presented now. It is our opportunity to devise means and methods that shall make our joint conclusions equally effective in guiding the work of today, which includes the primary but difficult tasks of overcoming prejudice or indifference and in arousing public concern over the contributions of modern psychiatry, concerning the etiology of mental disease, and possible preventive measures. It is impossible to fix any date when the attitude towards the etiology and significance of mental diseases underwent an epochal change. Gradually through the early periods of American psychiatric effort up to the present time, there has been a slowly accumulating fund of knowledge and experience that has dissipated many of the prevailing misconceptions of the past. No longer do the influence of the moon, religious zeal, disappointment in love, loss of property, childbirth and scores of other alleged causes, satisfy the investigator as being the important etiological factors in producing mental disturbance. Trivial events in chronological connection hardly suffice to satisfy the worker looking for real causes. The etiology and pathogenesis of mental diseases afford some of the most obscure and complex problems of medicine. No others require more aid from all sources. The biologist, internist, chemist, physiologist, psychologist, neuro-pathologist and the social worker, must all be called upon for their special contribution in studying the conditions, internal and external, which singly or in combination form the actual somatogenic and psychogenic causal factors. The commonly accepted belief that family tendency, some single, trivial incident, minor injury or illness should be considered as the sole cause of mental disturbance in a given case has been abandoned by the careful psychiatrist, who is appreciative of his limitation in regard to knowledge of etiology, results of such treatment as may be adopted at any given period of the disease and its final outcome. All adults meet the physiological crises of life, the larger number react normally, a few break down mentally. Many have neurotic or psychotic relatives, though fortunately hereditary tendencies that develop to the breaking point are seen only in a small proportion. All at some time suffer grief, emotional stress, illness, infec-

tion and varying mental conflicts, and a few react with symptoms of a psychosis. Many have luetic infection but only the few develop paresis. Alcohol in past years has been a common beverage, used excessively by many, while only the few reacted by exhibition of mental symptoms commonly associated with alcoholic indulgence; and so it is with all the many incidents and accidents of life that befall the individual. From the modern psychiatric standpoint each patient becomes a distinctly individual, biological unit differing from all others in hereditary characteristics, physical and psychological development, environmental influences and mental trends with a personality that reacts independently to disease, mental conflicts and all the assorted experiences of life in its various stages. Such an approach to the study of a mental case has been expressed by Dr. Adolf Meyer in a paragraph deserving frequent quotation:

> After studying in each patient all the non-mental disorders such as infections, intoxications, and the like, we can now also attack the problems of life which can be understood, only in terms of plain and intelligible human relations and activities, and thus we have learned to meet on concrete ground the real essence of mind and soul—the plain and intelligible human activities and relations to self and others. There are in the life records of our patients, certain ever-returning tendencies and situations which a psychiatry of exclusive brain speculation, auto-intoxications, focal infections, and internal secretions, could never have discovered.

The organization of our Association's activities and annual meetings upon a plane that shall include contributions from all fields of research touching the questions involved in mental disease is both our duty and privilege. Here is a field for presentation of new ideas, theory, technique and practice which in time are reasonably certain to receive their proper valuation. The special interests of the Association's founders and the natural limitations set by the stage of development in psychiatric knowledge of their period have gradually changed and broadened until to-day, medical workers from the whole continent interested in the many phases of psychiatric work, are invited to join in our efforts and contribute to our sessions. How to best organize such a broad co-operative action for the common interest and the promotion of mental science is a question to be solved by Association officers and committees of coming years.

The notable advances that have been made in preventive medicine during the last half-century have caused many physicians and laymen to question why similar results could not have been obtained in the reduction of mental disease. Illustrative of this attitude was the question recently asked by a prominent legislator of a certain state as to why something was not done to reduce the incidence of insanity. It is difficult to answer such a question briefly and satisfactorily when the one seeking information or offering criticism does not know that the hospitals are dealing largely with end products, that paresis might have been prevented if the sufferer had been under control for 20 years prior to onset of symptoms, that alcoholic mental disease could have been prevented by similar supervision, that many other cases would not have arisen to swell our statistics if the mismatings of a former generation had been avoided, and that still further reduction would have followed careful supervision of the physical health and mental life of the patients from earliest days. It is unfortunate that we cannot direct research into channels that would definitely identify, subject to Koch's law, " The germ of insanity," so often mentioned and pictured in Sunday supplements, or in the field of therapeutics find some simple medical or surgical procedure that would immediately " cure " the mental disorder. It is hardly necessary to review the many claims to the attention of psychiatrists that have been made for treatment of this and that mental disorder, which under the crucial test of trial by unprejudiced observers have proven disappointing failures. Indirectly, much good has resulted from such claims. They have often stimulated medical study, drawn attention to new points of attack or have resulted in improved routine treatment of obvious, though possibly neglected conditions. The trial of any well considered and seemingly rational line of treatment that may be employed without danger to the patient has a direct value in breaking the tendency to static medical practice in hospitals where a spirit of undisturbed fatalism is productive of medical inertia and its benumbing effects. Therefore, let us solicit from all possible sources, therapeutic suggestions that may be applicable to any stage of mental disturbance, from first symptoms to terminal conditions. Because of the complexity of the problem and the uncertainty of results, we may surely predict that the most valuable contributions to psychiatric therapy of the future will be offered in a spirit of hope and becoming humility.

Research in mental diseases presents complex problems that seem to defy solution. Slowly and gradually scientific knowledge is accumulating, but there is reason for expecting coming years to show swifter advance than those of the past. The total of research work in our several hospitals represents a very considerable effort in the biological field. Briefly, it is accomplished by detached workers in hospitals who upon their own initiative encourage the work; by state organization of central laboratory facilities and attempted direction of the work in the several hospitals from this centre; and lastly by the foundation, either by public or private funds, of a psychopathic clinic in connection with university activities where the co-operation of all departments can be secured for any special work. The latter arrangements seems to be the best possible combination for research that is likely to be effected in the near future. Here, also, are the best opportunities for post-graduate training and stimulation to which many will go for a development that ultimately finds expression in better psychiatric practice, both in and out of hospitals. University relations of this character appear to offer for psychiatry the true "Correlation of Sciences," sought by Van Gieson, 25 years ago in a more restricted field. Endowment of research in mental diseases will follow the demonstration of its need by such competent university organization.

This mention of therapeutic and research study is largely for the purpose of discussing methods calculated to bring before our annual sessions the best products of work accomplished and of offering encouragement for further effort, for it is believed that a systematic, continued aim to produce this result could not fail in its purpose. To approach the subject from any other viewpoint than that obtained from service on committees and in the various offices of the Association, granted by your indulgence, would be an evidence of self-assurance not to be exhibited. It is permissible to review the occurrences of recent years from the personal point of view. Our members scattered over a continent, largely resident in the thickly populated areas, are representative of all types of psychiatric work and interests; they are largely lured from their habitat and brought into the open by the efforts of the Program Committee, which deserves so much appreciative consideration from members who may not always realize the difficulties

encountered in producing results that are mind-satisfying to all present at each and every session. It has been the custom for the in-coming President to appoint this committee usually after the session ended, when exchange of ideas concerning the next meeting was dependent upon correspondence with its inevitable delays and misunderstandings. Were this committee composed of 10 or more members, two of whom retired annually, their places being filled by new appointments, a better opportunity would be afforded for continuity of policy and appreciation of various needs than exists under the present system, which throws a most burdensome task upon the committee chairman. Such a permanent organization in preparation for the coming year would be able to hold conferences during the preceding session at a time when interest and attendance would unite to bring out the best results. The Committee on Pathological Investigation might well be similarly organized for the purpose of keeping in close contact with work under way in its field, and for co-operating with the Program Committee to furnish its quota of papers for the annual meetings. This committee formation would enable the perfection of plans far in advance. Special work, not to be accomplished between annual meetings, could be stimulated. Longer connection with the duties would tend to develop greater interest and participation of the entire committee, thus assuring more contacts with our entire Association membership and increased assurance of meeting its varied desires. These suggestions are offered, not with the expectation of immediate acceptance, but for consideration of the Association and such action as it may deem advisable for the purpose of developing among members an increasing interest in the scope and character of our annual meetings.

The flow of water does not rise above its source, and our meetings cannot develop in value beyond the work and output of individual members, a very large proportion of whom are resident physicians in state owned and controlled hospitals. These hospitals are conducted under legislation and custom that necessarily vary widely both in the two countries and in the many states from which we draw our membership. Naturally, the two countries will each proceed according to their own needs and desires in the conduct of their respective hospitals, and beyond the expression of a personal belief that both can profit by a closer acquaintance with each other's methods of control and management, no further consideration is

advisable. Because of the closer union of our states and the frequent comparison of methods employed in each, with complete autonomy over its internal management, the situation is different and invites thought and discussion as to how standards and policies may develop equally. It is a matter of common knowledge that between the best and poorest methods employed in the care and treatment of mental disorders in the several states there is an unhappy comparison, which raises the question as to what the Association as such can do to aid in the improvement of conditions. No volunteered aid or special criticism from a self-appointed body would be effective, even if tolerated. Other methods must necessarily be adopted. Fortunately, in medical activity there are many precedents for guidance to such help as might properly be given when desired. Within recent memory the efforts to standardize medical school training and the requirements of physicians have spread throughout the country. The surgeons have organized and adopted standards that are calculated to increase the standing and usefulness of their specialty. Certain states have established common requirements for all general hospitals that assure reasonably efficient facilities for the diagnosis and treatment of disease, before public funds are available for aid in maintenance. While it is altogether probable that the local management of all our mental hospitals would welcome any changes that would bring a given hospital up to the highest standard, it is equally apparent that this consummation is impossible without much preliminary work that takes into consideration state organization, and methods of supervising and financing hospitals, matters to be adjusted only by legislative enactment. Any organization that undertakes to initiate state-wide hospital improvement must have funds and the full time of workers at its command. Our Association is not so supplied, but its members have given freely of their time and advice to the mental hygiene work long active in many states, and now making plans for international organization. It is the opinion of many whose views have been obtained that in this field of effort our organization can make its influence felt in ways that can help without arousing criticism of aims or methods employed. It would seem to be a privilege of our recently formed Committee on Standards and Policies to formulate views concerning state organization and hospital requirements that can be available as guides

when changes are being effected. The committee could command the services of many members whose duties have brought them into intimate contact with the questions involved. This action would not be an innovation. It merely follows precedent established in the early days of the Association and of other medical organizations in recent years. Its results would be available as a guide to any and all efforts being made to improve hospital conditions and state methods of organization. We could thus supplement the work of all other associations, local or national, engaged in attempting improvements. It is no simple task to develop through legislation and later practice the essential foundations upon which our state hospitals can be operated in a manner that successfully meets the public demand and increasing opportunities of service. The governors of our states, more than any other individuals, hold the key to the hospital situation. Administrative support or opposition to any measure affecting our work practically settles its fate. Gubernatorial appointments to boards, commissions or departments largely determine whether hospitals shall be conducted as progressive medical centers, economical boarding houses or asylums both for patients and the incapable favorites of frequently alternating political parties. There are few executives who would not receive and consider the collective judgment of our Association when means are being sought for improving a state service. A state hospital system may be said to have its roots in legislation, its trunk in central administration; the hospitals are its branches and the fruit is the service rendered to patients, community and medical progress. The art of grafting may be freely practiced, however, so the same tree may bear fruit of different quality.

The primary object of this discussion is to emphasize the necessity for the proper foundation of a state hospital system, one that shall assure an intelligent and sympathetic interest and support in the major duties of a hospital to its patients and the community. Our Association should be alert to recognize such opportunities for service when they arise, and active in lending its collective support and assistance whenever such action is possible. Public opinion, professional support, and legislative action are all necessary factors in effecting desired improvements. It is often necessary to overcome prejudice and misconceptions before a start can be made. In the proper presentation of psychiatric needs to the several groups whose interested action is necessary to bring about reform,

there is a call for the collective action of our Association to supplement the striving of individual members. With no great sacrifice of time or effort, standard requirements for hospitals receiving acute mental cases could be stamped with the Association's approval as the lowest ideal towards which each hospital in every state should aspire.

Progress in psychiatry has spread over many fields of activity and left its impress on many human efforts. Reference to one notable advance is pertinent at this time. The gradual extension of the psychopathic hospital idea has amply demonstrated that the public will support a well-conceived effort to promote psychiatric progress. These hospitals with university connections, well-equipped staffs, and ample funds at their disposal, will inevitably assume leadership of American psychiatry in the fields of intensive biological study, broad social service and instruction, both to students and physicians, but they leave practically untouched the great work of furnishing adequate hospital treatment for all acute mental disorders, excepting the very small percentage of cases admitted to these special hospitals. There is the field for our individual effort, very largely under the supervision of our membership. Obviously, the need of diagnostic and therapeutic skill, for patients admitted to one hospital, is no greater than the need of others sent elsewhere. The hospital situated in some remote country district has the same opportunity for service to patient, family and community, though on a smaller scale, that is afforded elsewhere. Until that opportunity is embraced the hospital does not function adequately.

Passing from a consideration of collective to individual effort, it is well to realize the important position held by every hospital in promoting a sustained attempt to advance psychiatric work. This end may be achieved in the future, as in the past, not by poorly balanced sensational attempts to shorten the road, but rather by intelligent, persistent application of our slowly increasing knowledge of the psycho-biological facts involved in mental disorder, and by the success with which we meet the increasing calls upon hospital service. First in importance is the careful attempt to solve the medical problem presented by every incoming patient through the application, as the case may require, of all medical, nursing, therapeutic and social service methods at our disposal. This

service should extend to the families of our patients, often as a preventive measure at a time when there is reasonable hope of success. The general practitioner needs neuro-psychiatric assistance in his practice and must turn to the hospitals in many localities as the only available source for such aid. Utilizing the voluntary admission privilege, patients can secure upon the advice of attending physicians, the clinical and laboratory study requisite for diagnosis and treatment. The standing of a hospital in any given community is largely dependent upon the judgment of the local medical profession. When this body of influential critics are convinced that the routine work of the hospital is conducted with a due regard for sound medical principles and in a spirit of co-operation with them, we have gone far in removing the barriers of professional prejudice so often exhibited towards hospitals for mental disease. It is for us to demonstrate to the medical profession that our hospitals offer special opportunities, not only for acquaintance with morbid psychology, but also furnish exceptional facilities for the study of chronic disorders and problems relating to general medicine. A given hospital can make this demonstration only by a well-balanced and efficient medical staff whose members are interested in their work, appreciative of their opportunities and ambitious for their own self-advancement. Our medical service must be so organized that the opportunities offered the young medical recruit shall assure advancement not measured alone by compensation and promotion. Post graduate study should be aided and encouraged. It might well be made a condition for advancement. The influence of good medical work is not confined to the hospital interior, but spreads through patients, relatives and physicians to the formation of public opinion and its consequent effects upon our work and promotion of its interests. The call made in recent years upon physicians with neuro-psychiatric training to conduct clinics in their specialty, to assist schools, courts, and many social agencies in meeting their respective problems, is heard with varying degrees of urgency, from every community. Each hospital has this opportunity for a type of service which, if reasonably performed, will have the most far-reaching influence in spreading general knowledge of mental defects and disorders and in establishing the value of psychiatric advice, long before the period of hospitalization in a given case is reached. Prevention

of disease is the greatest contribution of medicine to the public welfare. Reduction of mental disorders through preventive measures is a hope of the future. From our present knowledge of the many factors to be influenced, it is improbable that the incidence of mental disorders can be materially affected until medical and sociological efforts are supplemented by individual attempts to avoid all known dangers to mental stability, including a reasonable regard for the potential factor of heredity and its effect on succeeding generations.

Our society has boundless opportunity both collectively and individually to promote and stimulate the many measures that must be effective before psychiatry can be credited with notable achievement in the prevention of mental disease. The degree of success following preventive effort can be estimated only by the passage of the years and generations. Even as we of to-day look back with approval upon the accomplishment of our predecessors in meeting the need of their period, so may we hope that our successors may regard our work as having contributed to the prevention of mental disease, with all it implies in individual and national life.

A REVIEW OF SERVICE PATIENTS IN A MENTAL HOSPITAL.

By D. K. HENDERSON, M.D., F.R.F.P.S.G.,
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AND
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The question of the treatment of ex-service men who are suffering from prolonged mental illness, arising out of, or in connection with, their war experiences, is one that is raised from time to time in Parliament and in the Press; and the views expressed are such as to show that the lay public have but a slight inkling of the nature of the problem. Various expensive schemes have, here as in the United States, been suggested for the treatment of these men. For example, it has been proposed to erect separate hospitals where they may live apart from all other classes of mental patients, and where all the newer and less-tried as well as the better-established methods known to psychiatry may be employed. It seems to be considered that these patients suffer from a different, and, as a rule, more favorable type, of mental illness than the ordinary inmates of mental hospitals, and that the conditions of origin of their psychosis were entirely extrinsic; that these men would never have entered mental hospitals if the war had not overtaken them. If such views are erroneous, it is necessary that the evidence refuting them be made as accessible as possible, and this paper is a contribution to the slender volume of published evidence. The questions also whether the charge on the state is likely to be temporary or for the life-time of these men, and whether they, or any proportion of them, are likely to be of further service to the community, are likewise important. An inquiry such as this, too, is likely to reveal the defects, or otherwise, of the system under which such men were passed into the army in large numbers.

LITERATURE.

The infrequency of previous studies, especially of the class of patient remaining in mental hospitals several years after the cessation of war, is a further reason for collecting and presenting addi-

tional information. Robinson[3] of Wakefield has published an analysis of 140 cases. He emphasizes the facts that hereditary instability, criminal traits, and a history of alcohol or syphilis, are more frequent in comparison with ordinary mental hospital admissions, that the recovery rate is very small, and that of his 140 cases, 136 had been potential psychopaths.

Hotchkis[4] gives figures with regard to 942 cases admitted to Dykebar War Hospital. (They were all certifiable cases.) Of these no fewer than 134, or 16 per cent, were classed as "confusional insanity," admittedly including manic-depressive types and psychoneuroses. In 118 dementia præcox cases (14 per cent of the total) 11 were classified as katatonic, 14 as paranoid, and 93 as simple types. This small proportion of paranoid types contrasts strongly with the figures given by one of us (D. K. H.) in a former paper, and with those of the present series, where the paranoid variety preponderates. Moreover the total number of cases diagnosed as dementia præcox (14 per cent) is an unusually small proportion of the whole. King (quoted by Henderson[14]) states that more than half of the mental diseases met with in the United States Army requiring asylum treatment were of the dementia præcox type, and Smith (quoted by Henderson[14]) gives similar figures from the military admissions to the Government Hospital for the Insane, Washington, for the years 1905-1910. A similar proportion is evident in the paper by Henderson[14] and in the present series. Five hundred of Hotchkis's cases were discharged: 16 per cent to other asylums (but the proportion of the various types of mental disorder constituting this figure is not given), 18 per cent to duty, 41 per cent as recovered , and 13 per cent as relieved: while 5 recovered and 37 relieved cases were sent to other hospitals on account of bodily infirmity.

Stanford Read[10] in a series of 3000 cases admitted to "D" Block, Netley, gives the proportion of dementia præcox as 20 per cent (at least), of manic-depressive insanity as 14.3 per cent, of mental deficiency as 13 per cent, of "confusional states" as 17.1 per cent, and of paranoid states 16.6 per cent. He lays particular emphasis on the unusually large proportion of paranoid states in these war psychoses, expresses surprise that this had not previously been remarked on, and suggests that it is accounted for by the stimulation of latent homo-sexual trends by association with

men only over a considerable period of time. But this asserted preponderance is open to doubt. Thus Read does not give the proportion of paranoid types among his dementia præcox cases, notwithstanding the fact that he adopts Freud's view that paranoia, paraphrenia, and dementia præcox paranoids are psychopathologically very closely allied; whence, in any proposition as to the prevalence of paranoid conditions generally, it would seem necessary to include in them the paranoid forms of dementia præcox. At the same time, 7.7 per cent, or nearly half of Read's paranoid group, are hallucinatory paranoid states, which some other writers prefer to class as dementia præcox types of reaction. (*cf.* D. K. Henderson, *infra.*) It seems important therefore to compare the proportion of paranoid conditions generally in the ordinary civil cases in asylums with Read's figures.

Among the 445 patients, male and female (exclusive of service patients), resident in the Royal Mental Hospital, Gartnavel, on December 31, 1921, 159, or no fewer than 35.7 per cent, were comprised in the paranoia, paraphrenia and paranoid dementia præcox groups. This equals the total proportions of all Read's dementia præcox cases, paranoid or not, together with those he classes as "simple paranoia," "hallucinatory paranoia," and "pure paranoia." The two series are not, of course, strictly comparable, but it is nevertheless apparent that the contention that paranoid conditions were specially favored by the war is open to question.

There is available a certain amount of evidence on the early stages of mental disorder occurring among the troops. Napier Pearn[2] analyzed 200 cases of psychoses in the Expeditionary Forces, but they were specially selected by him to include only those who had made a sufficiently good recovery to warrant their return to duty. Only 20 per cent of these had been under fire, and he emphasizes the importance of other factors—separation from home, anxiety as to family affairs, etc. In only 10 per cent was an insane heredity traced; but the data were incomplete on this point. Ten per cent had a history of excessive alcoholism. Syphilitic nervous affections did not figure as a cause, as was to be expected from the method of selection. Malaria and dysentery accounted for nearly half of 60 cases from the eastern theatre of war. Difficulty in diagnosis was experienced, as many of the

cases were got very early (the average duration of the psychosis on admission was four months). Unfortunately the classification adopted was much too generalized and indefinite to be of much permanent value. Thus, under "states of excitement" were admittedly included manic-depressive insanity and exhaustion psychosis, and "others"—probably excited states occurring in dementia præcox-like psychoses, etc. "States of depression" similarly included not only manic-depressive types but conditions in which the mood disorder was secondary to a delusional formation, some of them with a strong alcoholic history. Confusional states were said to include mainly exhaustive psychoses, and consequently to afford the best prognosis. "Delusional states," on the other hand, included a wide variety of mental disturbance—paranoia, paranoid states, with or without a history of alcoholism, and paranoid dementia præcox. His remarks on dementia præcox types are interesting. He includes under this heading only 5 cases, which after an apparently complete recovery, again broke down. Others, although they showed exactly the same type of reaction, he placed in the "confusional states" group because they had exhibited no sequelæ at the time of writing. This seems to carry Kraepelin's principle of prognostic classification too far; such cases are essentially similar in their development to dementia præcox in general: differences are probably to be sought for in the personality as much as in the outcome. Moreover they are much more closely allied to dementia præcox in their etiology and symptomatology than to "exhaustion psychoses." It would not be wrong, and certainly would be more profitable to regard the psychogenic element as the predominant one in these acute transitory psychoses, while exhaustion psychoses are usually considered, as their name implies, to be predominantly physiogenic in origin. Of the 200 cases dealt with, all of whom were returned to the army on recovery, only 47 per cent were found to be doing well some months after. "In view of these facts, it is doubtful whether from the national point of view, the occurrence of a psychosis should not be an absolute bar to military service."

Eager[3] gave information, principally of a statistical nature, regarding 2429 cases. The official nomenclature was used, and the disadvantages of this method of classification are again evident. Thus "delusional insanity," "confusional insanity" and

"melancholia" form the largest groups. Eager, however, recognizes the value of transitory dementia-præcox-like psychoses as examples of præcox types of reaction, and he classifies them as such. Alcoholic insanity formed only 1.1 per cent of admissions, and none of them originated in the war. With regard to the mental defectives, he says, "It is quite clear they would be of no use for military purposes." Thirty-three per cent of the total admissions were discharged to their civil occupations, and only 1 per cent of these have broken down again at the time of writing. Ten per cent were returned to the army, and of these half were fit and well some months later. Only 6 per cent of the total admissions were, at the time of writing, certified and transferred to asylums, and of these nearly a half were cases of general paralysis, while the remainder had been previously in asylums, or suffered from epilepsy.

Marr[7] in 3755 cases (exclusive of neurasthenia and psychasthenia) found 42 per cent mental defectives, 8.92 per cent "mental enfeeblement" (including dementia præcox, mania, melancholia, manic-depressive insanity and epilepsy), 36.7 per cent confusional states, and 12.04 per cent organic psychoses, including general paralysis.

Henderson[8] published in 1918 some observations on 202 cases of mental disorder among home troops. A summary of these observations is useful for comparison with the present series. Thus of 61 mental defectives, 27 showed a psychosis which cleared up after admission to hospital. Of 43 cases of dementia præcox type, 20 recovered sufficiently to go home. The significance of such transitory dementia præcox reactions will be remarked on later. Of 24 cases of manic-depressive type, only 3 had a previous history of insanity, and it is perhaps better to regard the remainder as "symptomatic depressions." Of 19 cases of general paralysis, 11 exhibited mental symptoms within six months of enlistment. An adequate examination on enlistment would have eliminated a number of these. Seventeen cases of alcoholic insanity, most of them chronic alcoholics, rapidly cleared up in hospital. Of 8 cases of paranoid state, some admitted alcoholic indulgence, which was no doubt an important factor. In 12 cases of traumatic insanity, the relation between the injury and the subsequent symptoms was not always clear, and in these cases

additional factors were sometimes evident. Ten cases of psychoneurosis and 3 of infective-exhaustive psychosis cleared up in hospital. Three epileptics and 2 cases of organic brain disease completed the 202. The conclusion is reached, that more care in examination should have been taken, especially of those who were grossly defective, those who had in civil life shown definite psychopathic traits, and those who had previously suffered from serious head injuries.

In the present series of 113 cases, as compared with the above 202 cases, the proportions of the different disease-types are strikingly altered. It is true that a comparison of this sort, relating as it does to two different series of cases, is widely open to fallacy, but it seems safe to assume that within limits, our present series is representative of those now residing in mental hospitals throughout the country. Moreover, the above figures, confined as they are to home troops, are the only comparable ones available relating to the patients in military hospitals during the war.

TABLE A.

I. Home Troops (Military Hospital, 1918). 202 cases.	Per cent.	II. Present Series (Mental Hospital, 1921). 113 cases.	Per cent.
Mental deficiency	30	Mental deficiency	17.5
Dementia præcox	21	Dementia præcox	43
Manic-depression	12	Manic-depression	7
General paralysis	9	General paralysis	16
Alcoholic insanity	8	Alcoholic insanity	2*
Traumatic insanity	6	Traumatic insanity	1
Psychoneuroses	5	Psychoneuroses	1
Paranoid states	4	Paranoid states	2
Toxic-exhaustive	1.5	Toxic-exhaustive	2
Epilepsy with insanity	1.5	Epilepsy with insanity	5.5
Organic brain disease	1	Organic brain disease	2.5

* Nearly.

Only the relative distributions of disease-types can be safely commented on from such tables. Thus, while dementia præcox cases amounted to only two-thirds of the cases of mental deficiency among those passing through military hospitals, among the more

permanent cases the proportion of dementia præcox is two-and-a-half times that of mental deficiency. It appears safe to conclude while the proportion of mental defectives able to go back to civil life was considerable, the proportion of the dementia præcox reaction type in a similar position was much less. Similarly, while the proportion of manic-depressives was among home troops more than half the proportion of dementia præcox cases, it is now in the present series less than one-sixth. This is to be expected, in accordance not only with the prognosis of manic-depressive insanity in general, but with the observation that only three of the manic-depressives of the first series had a history of previous attacks.

Methods.

In the following pages, all the available data in the 113 "service" patients who have resided in this hospital are collected. Only in the 67 still resident in this hospital could a complete inquiry be conducted The data include the army records on enlistment and during the course of the illness; these are scanty. Special investigations were conducted into the etiology. For this purpose, the patients' friends—where these were available—were interviewed, and the personality and heredity were investigated. Unfortunately, in a number of cases the friends were obviously reluctant to admit hereditary predisposition or traits indicating a psychopathic make-up, while in others they were of an unintelligent, uneducated type. Further, the army records were supplemented with regard to wounds, infections, home or foreign service, etc., from the patients themselves and their friends. In view of Adler's[9] work on "Organ Inferiority," and of the stress recently laid on the rôle of the ductless glands in the etiology of mental disorders, a complete physical examination was carried out on each patient, with special reference to the presence of signs indicating endocrine disturbance. Each patient also underwent a complete mental examination, with a view to accurate classification, estimative of the degree of dementia, and of the prognosis.

Classification.

It is important that the classification of these patients be brought into line with the now more or less well-established classification in use in America and the continent, but apparently not often adopted here. Only by the adoption of some well-defined scheme will it be possible to compare the case-material in one hospital with

that in others. At present this ideal is far from being attained, as is apparent from the literature and from the army records (*vide infra*). The term which has played the greatest havoc in the classification of the war psychoses, and which has come to be used most generally, is "confusional insanity." Such a condition can by no means be designated a distinct entity, but only "as a symptom in almost any form of mental disturbance." (D. K. Henderson.[6]) In addition, such vague terms as "delusional insanity," "neurasthenia," "dementia," "secondary dementia," are common.

Stanford Read[16] defines the term "confusional insanity" with more care, and shows greater discrimination in its use than any of the other writers on war psychoses who have employed the term; but in doing so he implicitly (although he does not apparently recognize this) denies the existence of "confusional state" as a form of insanity *per se*. Thus he sub-divides "confusional states" into those due to (a) toxic causes, (b) those due to psychic causes, and (c) those due to trauma. But group (a) comprises those cases usually classified as toxic—or infective-exhaustive—and also (as will appear in the present paper) some cases which later develop into definite psychoses. In group (b) he includes amnesias and other cognate types of mental disorder, generally recognized as psycho-neurotic. The utility of placing such cases under a purely symptomatic grouping is not clear. Under group (c) the only case quoted in detail is one of a type now fairly well differentiated as traumatic insanity.

In addition, Read emphasized the fact that it was often impossible to differentiate cases of "confusion" who might be in the initial stage of dementia præcox; but is so influenced in this case by the prognostic viewpoint that he apparently does not think of the possibility of regarding cases of "confusion" which cleared up as examples of a transitory dementia præcox type of reaction, although he remarks that "maladaptable mentalities" will "naturally react in a confusional way from a conflict of impulses."

Robinson[1] classifies all his cases in two large groups "amentia" and "dementia." This is of little use from the clinical and prognostic point of view, however, convenient it may be. "Amentia" might stand, as it apparently includes only the group classed in this paper as mental defectives (congenital); but the term "dementia" apparently includes everything else—general paralysis, manic-depressive insanity, dementia præcox, epilepsy with insanity, etc.

Intimately connected with the question of classification is the problem of accurate diagnosis. And it is in this problem that the advantage of a well-defined system of classification is evident. This will appear when we come to deal with the symptomatology. The one thing that the terms dementia, delusional insanity, confusional insanity, and so on, have in common is their vagueness—each can be applied to a wide range of mental disorders, differing greatly in etiology, pathology, symptomatology (if careful enough analysis be made) and prognosis. They apply each only to one stage of a mental illness, and give no indication of the essence of the disease. In this connection also, the advantage of regarding the illness as a mental reaction type, rather than as a disease, is manifest (*vide infra,* under Symptomatology—dementia præcox).

A comparative table of the army classification of 67 cases at present resident in this hospital, with a classification of the same cases on the above principles, may usefully be appended here.

TABLE B.

DIAGNOSIS.

(A) ARMY CLASSIFICATION.		(B) PRESENT CLASSIFICATION.	
Feeblemindedness ..... 7 or Mental deficiency 6	13	Constitutional inferiority (mental deficiency)	15
Dementia præcox	11	Dementia præcox	38
General paralysis	3	General paralysis	3
Manic-depressive	—	Manic-depressive	3
Epilepsy	5	Epilepsy	3
Syphilis spinal cord	1	Alcoholic hallucinosis	1
Confusional insanity	3	Hypochondriacal depression ..	1
Delusional insanity	9	Paraphrenia	1
Mania	5	Traumatic insanity	1
Melancholia	4	Unclassed	1
Neurasthenia	4		
Exhaustion psychosis	1		
Anergic stupor	1		
Secondary dementia	1		
Dementia	2		
Tertiary syphilis	1		
Cut-throat	1		
Urethral stricture	1		
Unknown	1		

It may be pointed out that the correspondence between the two series of diagnoses is even less accurate than at first appears from the table: thus while the chief error consisted in a failure to recognize dementia præcox, a number of the 11 cases diagnosed as such had subsequently to be included in another category.

Etiology.

The etiological factors on a survey of the material are various. They may be divided into two groups: (a) Existing independently of the war, and (b) associated with war conditions:

(a) Under (a) are included insane heredity, psychopathic predisposition (in the sense of Hoch[7] and Meyer[8]), constitutional inferiority (mental deficiency) and previous mental illness. To these should be added physical inferiority—definite organ inferiority, or evidence of ductless gland disorder.

A statistical analysis of these factors with the exception of physical inferiority, which will be considered below, gave the following figures: (Table C.)

Thus, in the 99 cases in which complete investigation of the question was possible, congenital mental deficiency was found to have existed in 25, or practically 25 per cent.

In the remaining cases, a detailed account of the personality was obtained in 31, and in 17, or 55 per cent, of these a definite psychopathic make-up seems to have been present.

In addition, 7, or 6 per cent of the whole, had been previously under treatment in mental hospitals; while 10 cases, or 12 per cent of those in whom records on this subject were complete, exhibited heredity alone.

Excessive alcoholism had been present in only four cases, in two of which no other factors were traceable. Apparently alcohol cannot be considered a common cause of permanent psychosis among the troops. This is in accord with Henderson's[5] observation, that nearly all of his 17 cases of alcoholic insanity cleared up in hospital. Stanford Read[10] considered it to be a minor factor even among recent cases, and emphasized the relatively greater importance of psychogenic mechanisms. In at least one of our cases, the alcohol was symptomatic of pre-existing mental defect.

Thus either mental deficiency, psychopathic predisposition, previous mental illness, excessive alcoholism, or heredity was present in

TABLE C.

	HEREDITY			Previously under treatment for mental disease	CONSTITUTIONAL INFERIORITY (Mental)			PSYCHOPATHIC PREDISPOSITION.		EXCESSIVE ALCOHOLISM
	Admitted	Denied	No Record		Admitted	Denied	No Record	Present	No Record	In History
67 Cases at present in this hospital	17	38	12	6	16	47	4	17	20	3
46 Cases dismissed from this hospital	10	18	18	4	9	27	10	7	30	1
Totals	27	56	30	10	25	74	14	24	50	4

99 per cent of those cases in which complete records of those subjects existed.

Physical Inferiority.

At first sight, such a figure leaves little for other predisposing factors to explain; but a closer inspection reveals (*vide* table H, *infra*) that it is more common to have a combination of these conditions operating in a given case than to have only one of them leading to a war psychosis. This observation encourages us in the search for other possible predisposing factors, since it is permissible to make the hypothesis that in some at least of the cases showing only one predisposing factor so far, there may be other, as yet unrecognized, factors at work, and even in instances already showing a combination of causes further predisposing conditions are not necessarily excluded.

Now, war experiences imposed a very great physical strain on men who had been accustomed to sedentary work and a comfortable domesticity. It was, indeed, to eliminate the physically unfit that the army medical examination on enlistment was primarily and almost entirely directed, and accordingly, we need expect to find in our case-material but a small incidence of gross organic disease; only 10 cases out of 67, or 15 per cent, show marked visceral lesion, and all of these cannot be assumed to have existed before the war. The recent work of Adler,[9] however, on "Organ Inferiority" has called attention to the importance of realizing that the mental make-up is determined in considerable part by the physical constitution, and moreover is determined as much by minor, often functional anomalies, as by gross defects. "The facts established through my study of somatic inferiority have led me to assume the idea of 'compensation through the central nervous system.' . . . . The realization of somatic inferiority becomes a permanent impelling force for the development of the psyche. . . . . Organ inferiority includes the incompleteness in such organs, the frequently demonstrable arrests of development or functional maturity, the functional failure in the post-fœtal period, and the fœtal character of organs. . . . The possession of inferior organs is reflected upon the psyche—and in such a way as to lower the self-esteem and to raise the child's psychological uncertainty. Of extreme importance for the understanding of congenital inferiority and predisposition to disease are the researches

into glands of internal secretion." Visual, auditory, and speech defects, defects of the respiratory and digestive tracts, deformities, ugliness, stigmata of degeneration, and numerous other physical characters are held by Adler to indicate organ inferiority. Recently a beginning has been made in investigation on these lines by Kirby and Gibbs.[10] They remark that "the earlier, rather narrow, definition of personality, in the psychiatric sense, must give place to a broader conception of make-up, one which recognizes that the so-called constitutional types represent trend reactions, which in every individual have both somatic and psychic components." . . . . "We are convinced that one of the most promising lines of investigation in clinical psychiatry to-day is the study of physical make-up in connection with mental make-up."

. . . . "Among the most striking evidences of defective development and disturbance of function are those referable to the sexual organs and the secondary sex characteristics. These are quite definitely open to clinical observation, involve a fundamental function, and are apparently present in a significant number of cases of certain psychoses."

In support of these views they quote the work of Cushing and Timme[11] on the relation of the pituitary and the adrenals respectively to sex development. Thus, in his pituitary cases, Cushing found three types of testes: One with abundant interstitial cells and precocious appearance of sex characteristics; a second with scanty interstitial cells, deficient in secondary sex characteristics, and beginning failure of sex activity; and a third with absent interstitial cells, absent secondary sex characteristics and impotence.

. . . . "We do not mean to imply that the demonstration of sex deficiency in a significant number of cases would establish it as a fundamental etiological factor in the psychoses. This may be but one evidence of a deeper and more fundamental defect of bodily make-up or function."

Mott[12] found post-mortem that the most pronounced departures from the normal occurred in dementia præcox, general paresis, and imbecility, whereas no marked abnormality was found in the testes of cases of manic-depressive insanity, alcoholic psychosis, epilepsy, and paranoia. These changes consist in regressive atrophy of the seminal tubules and a tendency to arrest of spermatogenesis, with alteration of staining qualities of the spermatozoa.

He concludes that "dementia præcox is a primary nuclear degenerative process with no inflammatory reaction," exhibited chiefly in the nervous elements and the reproductive glands, but probably involving the tissues of the body generally. With these considerations in mind Kirby and Gibbs [10] palpated the testes of 313 cases—dementia præcox 186, manic-depressive 50, general paralysis 49, miscellaneous 28—for gross alterations in size and consistency. They found that (1) the dementia præcox cases showed the highest rate of variation in size, although the difference was not great; (2) in general paralysis and dementia præcox the rate of change in consistency, chiefly softening, was greater than in manic-depressive insanity; (3) where both change in size and consistency occurred, the rate was highest in dementia præcox and general paralysis. These differences were emphasized by the fact that the majority (76 per cent) of the præcox cases were under 41, and the majority of the others were over that age (72 per cent of manic-depressives and 71 per cent of general paralytics).

	Number of cases	Abnormal size	Abnormal consistency	Abnormal in size and consistency
		Per cent	*Per cent*	*Per cent*
Dementia praecox	186	56	47	31
Manic-depressive	50	46	22	12
General paralysis	49	42	58	28
	285			

A similar investigation was carried out on our series (*vide infra*)

In view of the admitted chemical and functional inter-relation of the various internal glands, and of Mott's belief that in dementia præcox there may be a hypofunction of the tissues of the body generally, it seemed advisable to make an investigation also along the lines suggested by Leonard Williams,[18] who emphasizes the differences in the skin, teeth, hair and nails, in the various types of glandular disorder. Thus, "where the thyroid is at fault, the skin (in varying degrees) is harsh, dry, and coarse," the hair is ill-nourished, tends to fall, may be dry or greasy, but is of good calibre; and the teeth tend to fall out; while where the pituitary is the primary offender, the skin may be dry, is always fine, or even atrophic; the hair is almost baby-like in texture and does not fall; and the teeth are exceptionally well preserved.

The distribution of the hair—whether masculine, or tending to feminine, or actually feminine in distribution—and its amount were also considered by us. Account was taken of the skeletal and muscular development, and of the general nutrition. Any striking abnormalities were noted. The whole of this investigation had to be confined to the 67 patients remaining in this hospital at the time.

It is on this, the physical side, that the army records of their cases may be expected to be of some use. It is accordingly desirable to consider these first.

TABLE D.

Year of enlistment	Number enlisting	
1914	16	
1915	19	
1916	16	
1917	7	
1918	2	
Pre-war	6	
No record	1	
Classification as to physical fitness:		
Grade 1	2	33
A	12	
A 2	1	
A 4	1	
Fit	15	
General service	2	
B I	3	7
II	3	
III	0	
Abroad	1	
C I	3	5
II	1	
III	0	
Home service	1	
No record of classification	22	

Defects (varicose veins, amblyopia, etc.) were noted in 23 patients on enlistment.

It is interesting to note that more than half of the 67 entered in the first two years of the war. The last two years contributed only 9. If this indicates anything, it emphasizes the necessity for a mental examination as well as a physical one.

In the light of Adler's views, it is noteworthy that 23, or 33 per cent exhibited defects such as amblyopia, varicose veins, hernia, etc.

Thirty-three of the 45, or 73 per cent, whose army records are complete on this point, were classed as fit for general service. This was, of course, due in part to the necessities of the time; but such a percentage would have been impossible even in the most stringent circumstances if any account had been taken of mental deficiency, previous treatment in mental hospitals, etc.

Passing to an examination of the 67 cases as they are at present, it is found that the average weight, 9 st. 6 lbs. and the average height, 5 ft. 6 in., are rather low. The average chest measurement is only 33 in., and the expansion is usually poor. Muscular development is good in 31 per cent, fair in 30 per cent and poor in 31 per cent. The general nutrition is good in 34 per cent, fair in 48 per cent, and poor in 21 per cent.

In the case of the teeth, in 7 per cent these were in a poor or bad state of preservation. Of the remainder, only a small proportion could be considered to show a high degree of preservation (*cf.* L. Williams *supra*).

These are all characteristics which have varied to some degree since the men enlisted, but which are nevertheless of value as indications of the general physique.

Turning to more constant features, we find that the hair was abundant in 21 per cent, moderate in amount in 20 per cent, and scanty in 59 per cent. Its distribution was masculine in 61 per cent, tended to be feminine in 24 per cent, and was distinctly feminine in 13.5 per cent.

The testes were unduly large in 4 per cent of cases, abnormally small in 55 per cent. They were firmer than normal in 21 per cent, and softer than normal in a further 21 per cent. Thus 59 per cent were abnormal in size, and 42 per cent abnormal in consistency. These figures compare with Kirby & Gibbs fairly closely considering the difference in the numbers in each series—59 per cent as compared with 48 per cent in Kirby & Gibbs' whole series showing abnormality in size, and 42 per cent in each series showing abnormal consistency.

TABLE E.

PERCENTAGE DISTRIBUTION OF PHYSICAL CHARACTER IN (A) DEMENTIA PRÆCOX (B) ALL OTHERS.

	DEVELOPMENT			NUTRITION			TEETH			HAIR		
	Good	Fair	Bad	Good	Fair	Bad	Stunted	Many	Few or none	Abundant	Moderate	Scanty
Dementia Præcox	39	31	30	30	46.5	23.5	23.5	39	55	18	18	57
All Others	38	27	35	41	41	17.5	21	45	55	24	17.5	59

	Condition			Distribution			
	Good	Fair	Bad	Masculine	Feminine Tendency	Fem.	(No Record)
Dementia Præcox	26	18	52	70	16	10	1 case
All Others	24	10.5	65	48	35	17	

	TESTES - size				TESTES - Consistence				History of Trauma or Disease
	Large	Normal	Small		Firm	Normal	Soft		
Dementia Præcox	5	42	50	(No record) 1 Case	18	57	21	(No record) 1 case	46.5
All Others	3.5	37	59		24	55	21		41

With a view to discovering what physical traits, if any, were associated with a particular type of psychosis, the dementia præcox cases, of which there were 38, were considered as a group. The remainder, 29 in number, formed a group for comparative purposes consisting of various types of psychosis. It was in this connection that the qualities of texture and nutrition of the hair, skin, and nails were minutely considered. (Table F.)

TABLE F.

SHOWING THE RELATION OF THE CHARACTERS OF HAIR, SKIN, AND NAILS IN THE CASES OF DEMENTIA PRÆCOX AS COMPARED WITH ALL OTHERS.

THE PERCENTAGES ARE OF THE NUMBER OF CASES OF DEMENTIA PRÆCOX, AND OF THE NUMBER OF OTHER CASES, RESPECTIVELY.

	Hair					Skin		
	Fine	Coarse	Brittle	Dry	Glossy	Dry	Normal	Moist
Dementia præcox	84%	10%	36%	50%	45%	39%	45%	21%
All others	72%	6%	17%	72%	17%	26%	39%	9%

	Nails				
	Atrophic	Fine	Medium	Coarse	Brittle
Dementia præcox	23%	50%	23%	31%	36%
All others	26%	37%	23%	18%	34%

The only notable figures are: (1) In the hair, the large percentage (compared with the percentage in "All other cases") of dementia præcox cases showing brittleness, and (or) glossiness; (2) in the skin, the tendency to moisture in dementia præcox; and (3) the large percentage of nail-texture abnormalities in the dementia præcox group.

(Fine + coarse = 81 per cent of dementia præcox cases, as compared with 41 per cent in the "other cases.")

The only figures which are possibly significant are those relating to the texture of the hair and nails.

The dementia præcox cases show a larger percentage (1) with brittleness or glossiness of hair or both, (2) with moist skin, and (3) with nail texture abnormalities. (Cases showing fine nail texture + those with coarse texture constitute 81 per cent of the dementia præcox group, and only 41 per cent of the heterogeneous group.)

With regard to the testes the dementia præcox group actually showed a higher percentage of normals than all other (*cf.* Kirby and Gibbs, *supra*), but the groups are very small.

Summarising these results, we find gross organic disease in 15 per cent, minor physical defects in 33 per cent, a deterioration in general physique in about 30 per cent, a nutrition deficiency in 21 per cent, a poor condition of the teeth in 75 per cent, and less equivocal evidences of ductless gland disorder in feminine distribution of hair (13.5 per cent), abnormality in size of testes (59 per cent), and in consistency (42 per cent) and in variations in the texture of hair and nails, especially in the dementia præcox group. But the groups are too small for definite conclusions, and a comparison on these lines with (1) a group of normal persons, and (2) a group of ordinary mental hospital admissions, would be useful.

(b) *Etiological Factors Associated with the War.*—These include principally service (at home or abroad) traumata (wounds, gas, etc.) and infectious diseases.

Thirty cases, or nearly 26 per cent, served only at home. Seventy-one or 54 per cent served abroad. Of the remaining 14, we were unable to get full particulars on this point. The average length of service was 1.8 years, of which 1.2 years was the average length of service abroad. But the average length of service of those serving only at home was only 10 months; while the average total length of service of those who also served abroad was 2.2 years, so that the difference between the staying-power of the foreign and home service men was even greater than is superficially apparent.

In 14 cases no predisposing factor, and no history of war-trauma other than service, could be elicited by inquiry. Four of them had been, however, considerably below par physically, and one of them has developed symptoms of Addison's disease. It is probable that more accurate records of the remaining nine would have revealed predisposition in at least some of the cases.

Traumata occurred in 28 cases as follows:

	Cases
Wounds	17*
Gas	2
Shell-shock	7
Kick from horse	1
Fall from height	1

* Followed by amputation in two cases.

Of 17 wound cases, only 3 cases showed no other factor, mental or physical, and the pre-war history in all three is imperfect.

Seven were mentally or physically defective.

Two showed hereditary predisposition.

Three were of psychopathic make-up, and one of these was an alcoholic. Excessive alcoholism was evidenced only in one case. One was invalided as a general paralytic, and was gassed as well. Of the seven "shell-shock" cases, so called, four were mentally defective, and two were of psychopathic make-up. The remaining case was gassed as well, and was considered to have had syphilis. (The W. R. is now negative in his blood, and there are no evidences of syphilis.)

A kick from a horse was apparently the precipitating factor in a case of general paralysis.

A fall from a height preceded a psychosis in a man who had already been in a mental hospital.

Infective-exhaustive factors were evident in 19 cases as follows:

TABLE G.

	Cases	Type of psychosis	Cases
Malaria	3	Dementia præcox	2
		Mental deficiency	1
Malaria and dysentery	3	Dementia præcox	2
		Traumatic insanity	1
Malaria and heatstroke	1	Manic-depressive	1
Dysentery	2	Dementia præcox	1
		Manic-depressive	1
Influenza	2	Manic-depressive	1
		Dementia præcox	1
Septic sores	2	Mental defective	1
		Infective-exhaustive	1
Rheumatism and V. D. H.	1	Infective-exhaustive	1
Scarlet fever	1	Dementia præcox	1
Enteric fever	1	Dementia præcox	1
Heatstroke	3	Dementia præcox	2
		Mental deficiency	1

I. e., of the 19, 10 were dementia præcox.
3 were congenital mental defectives.
3 were manic-depressives.
1 was a traumatic insanity.
2 were "infective-exhaustive" psychoses.

The above bears out very well " Bonhoeffer's contention (quoted by Southard) that so far from there being a one to one correspondence between toxins and entities (as Kraepelin maintains) the most varied causes in the infective-exhaustive group yield a comparatively small gamut of symptom-pictures " (D. K. Henderson[5]). It has, of course, to be observed that a few of these cases could not at any time have been classed as " infective-exhaustive " in origin. Indeed, other causes were equally potent in nearly all of them; so that only two could be classified ultimately as " infective-exhaustive psychoses." " In some of the cases the fever has seemed to act as the precipitating factor of latent trends, has brought to light an underlying mental disorder, and has been, for instance, the cause of many cases of mental deficiency showing disorders of conduct." (D. K. Henderson.[6])

This concludes the analysis of the various predisposing and precipitating etiological factors. The following table showing their distribution in 66 cases in which complete data of the sort were available, may be of interest.

Symptomatology.

" A question not infrequently asked is as to whether modern warfare has been instrumental in producing any new type of mental disturbance. . . . . I think, however, it may be stated without fear of contradiction that no special type of war psychosis has developed, but that the psychoses occurring during the war are essentially similar to those occurring in times of peace " (D. K. H.[4]). This contention is borne out by an analysis of the symptomatology of the cases under consideration. No new group has to be created for symptomatological classification. The war produced certain mental disturbances, *e. g.*, the neuroses in greater numbers relatively to other types, than conditions of peace; and it produced in some cases acute psychoses of a transient nature (*e. g.*, dementia præcox) which had hitherto been commonly regarded as the manifestation of a chronic, usually progressive condition; but in every instance the reaction-type can be identified with a reaction-type commonly occurring under civil conditions. There is, as might be expected, an environmental colouring in some of the cases: but this is not a fundamental difference.

It is convenient to consider the symptomatology under the

TABLE H.

SHOWING DISTRIBUTION OF ETIOLOGICAL FACTORS—(NOT INCLUDING PHYSICAL INFERIORITY).

(Only in those 66 cases in which complete data as to these were obtained)

(A) Cases showing one factor:

Heredity alone	5
Constitutional inferiority	3
Predisposition alone	14
Trauma or infection	7
Alcohol	1
Totals	30

(B) Cases showing two factors:-

Constitutional inferiority + trauma	6.
Constitutional inferiority + Hereditary predisposition	4.
Predisposition + Trauma	7
Predisposition + H. P.	4
Trauma + H. P.	7
Trauma + Alcohol	1
Totals	29.

(C) Cases showing three factors:-

Constitutional Inferiority + trauma + H.P.	3.
Constitutional Inferiority + Alcohol + H. P.	1.
Predisposition + Trauma + H. P.	3.
Totals	7.

headings of the various disease types, and to give one or two examples of each type.

Dementia Præcox.

Forty-six of the 113 cases are of the dementia præcox type. This is a large proportion, and as these cases are for the most part closely similar to the cases of dementia præcox occurring in ordinary asylum practice, the influence on the prognosis of the service class of patients in general is considerable. The importance both for the patient himself and for the nation of the recognition of the dementia præcox reaction-type cannot be too strongly emphasized. Many of the cases under consideration were classed in war hospitals as "mania," "melancholia," "neurasthenia," or simply "confusional insanity." As for the last term, it is true that a certain amount of mental confusion does exist, or has at one time or another existed in these patients; but when the confusion has cleared (if it clears at all) there is left, not as a rule a normal personality, but one with a definite psychosis of serious significance. Such terms as "mania," "neurasthenia," "confusion" imply a far better prognosis than can be given in the vast majority of these cases.

It is true that in a small proportion of our cases (6) the dementia-præcox-like reaction was transitory, and these cases are specially interesting. The reaction was developed in them towards the special situation of military life, and when that situation was removed, the abnormal reaction disappeared with it. McCurdy (quoted by D. K. Henderson) pointed out that the anxiety and conversion hysteroid states in war time come about at a more superficial level and react more easily to treatment than similar states occurring in civil life. "The same analogy holds true for the war psychoses, and it may be said that many cases of dementia præcox occurring during the war, although essentially the same as those occurring during civil life, occur at a more superficial level, and in consequence show a quicker readjustment than civil cases." (D. K. Henderson.[14]) This is a more useful conception than that of "confusional insanity." It allows us to regard the transitory cases as reactions whose mechanism is exactly similar to these reactions in civil life which also involve the innate tendencies of the individual, but which originate much more slowly and more complexly, and consequently involve a much more profound and

much more lasting alteration in the personality. The following two cases exemplify these points.

CASE I.—J. P. C. 26 years. Single, clerk, was admitted to Glasgow Royal Mental Hospital, Gartnavel, on April 16, 1919, as a transfer from the Glasgow District Mental Hospital where he had been admitted two months earlier.

Family history was negative for nervous or mental disease. Patient was a healthy child, developed normally. He was not nervous, was sociable, fond of dancing and singing, and did well at school. After leaving school he worked as a despatch clerk. He was a sober, good-living lad, and a strict Catholic. He enlisted in May, 1917, but was marked C.III. on account of his size, and never served over-seas. In November, 1918, he contracted influenza, but recovered, and in December, 1918, came home on leave. Four or five days after returning from leave he was admitted to the hospital at Colchester with mental symptoms, and after two days was transferred to mental wards at Norwich. At that time he was greatly excited, incoherent, and was in a padded room. He spoke much about the Kaiser, and said his brother was his father. Was described as under the belief that he had some scheme, and that various commonplace things that happened worked in with this scheme.

On admission to Woodilee he is described as incoherent and rambling in his conversation; at times he was very emotional, and cried without any cause.

On admission to this hospital he showed no disorder of conduct, answered questions promptly, spoke in rather an abrupt way, and constantly asked that the question should be repeated to him. He always seemed averse to entering into discussion of his case, tended to make light of it. He told how he had enlisted in June, 1917, how he had suffered from influenza and had been in the hospital, and then developed mental symptoms. In this connection he stated that it was something in the meat which made him sick. He then made an incoherent statement of how it all came about through an argument with some man—"It was a sign, a puzzle." He could not give any satisfactory explanation of the above statements; admitted having had imaginations, and having heard "voices," but said that these had now disappeared.

Physically he was in good condition.

On the night of April 21, 1919, he seemed rather excited; told the attendant that he was the smartest man in the world. Later when questioned about these things he flushed up, but denied all knowledge of them. When asked why he said he was the smartest man in the world, he said, "I am treating myself; do you not see I am different every day?" Gradually during his hospital residence he made good progress, worked with a garden party, behaved and conducted himself in a quiet, rational, well-behaved way.

On September 3, 1919, he was discharged as recovered. This patient was looked upon as a case of dementia præcox. The features which he showed

were all rather striking, while the incoherence in his speech, and his vague ideas of suspicion were much more in the nature of a dementia præcox-like reaction than anything else. He made a very good recovery, however.

CASE 2.—A. G. Admitted November 22, 1918, from Dykebar. 22 years. Private, Royal Engineers.

This man enlisted on September 27, 1915. Went to France in June, 1916. and took part in the offensive at the Somme in July, 1916. In November, 1916, he was transferred to a telegraph construction company. He stood shell-fire well, but was constantly on night duty, and he expressed himself as feeling that the loneliness upset him. He remembered going to hospital in France, but there was a blank in his memory covering several months.

At Dykebar he is stated to have been sent to hospital in France on July 28, 1917, with the report that he suffered from loss of memory, thought that he had committed a crime, and talked in a mystical manner about God. On August 6, 1917, he was confused, exalted and excited. He passed through a period of mutism, with grimacing, mannerisms, and faulty habits. Another note stated that he was demented, that he replied in monosyllables, that he was unreliable, and required supervision.

Following his admission to this hospital he improved in every way. He denied delusions or hallucinations, stated that his confusion and depression had disappeared, and that he was better.

On February 12, 1919, he was discharged as recovered. The history and development of this case, along with the fact that he passed through a period of mutism, with grimacing, mannerisms, etc., would tend to make one think that the condition was more in the nature of a dementia præcox-like state than anything else. He had been diagnosed as a case of confusional insanity.

As to the type of dementia præcox in the 48 cases under consideration, no fewer than 32 are of the paranoid type (generally with hallucinations), while 10 are simple, 4 catatonic, and only 1 hebephrenic in type. This is in accordance with the observations of one of us (D. K. H.) of a series of 159 cases, of whom 111 were hallucinatory paranoid states (97 of them of the dementia præcox type).

It has been held that these hallucinatory paranoid states are a special type of mental disturbance due to the war, and that it is erroneous to look on them as paranoid states occurring in dementia præcox, partly on the ground that a great many cases run a very transitory course. "The varied nature and constantly changing delusional ideas without any special systematisation, differentiates these cases sharply enough from paranoid states not dementia præcox in nature, occurring in civil life. It would be

easy to argue either way, but it is more satisfactory to think of the matter in terms of a mental reaction of a dementia-præcox type." (D. K. Henderson.[14])

The following two cases illustrate what is meant. It will be seen that the dividing line from dementia præcox, if it exists at all, must be very thin—the bizarrerie of the ideas indicating a profound intellectual deterioration, while the pre-occupation with these ideas, and the consequent adynamia and apathy towards the outside world, and the inadequate fluctuating emotional reaction, are all very characteristic of dementia præcox.

Case 3.—T. O. Admitted December 18, 1919. 30 years. Married. Shipwright.

Family history was negative for nervous or mental disease.

Personality.—He was clever at school. As a man he was quiet, reserved, and asocial—his sister was the only person he visited, and this he did regularly once a week. He was very sensitive, very conscientious, and an excellent workman. He was not of a worrying disposition.

He joined the army in January, 1915, and went to Gallipoli, but while there he took enteric, for which he was treated in Egypt, Aberdeen, and London. After rejoining his depot he was transferred to munition duties, from which he was demobilized. He seemed to get more and more quiet, and about the beginning of 1919 he became sleepless. At first he would not say what the matter was, but later he told his wife that "voices" were keeping him awake, that people were annoying him, and accusing him of taking a leg off someone; someone above put wires in his head, and he went down to his depot at Hamilton to report about it. It was shortly after this that he was taken to Duke Street Hospital, where he was noted as suffering from delusions and hallucinations.

On admission he showed a rather poor physique, but there was no definite disorder. He discussed his delusions, which all turned on his aural hallucinations. He described the trouble as due to a "sommyphone" worked by the army authorities, though he was very vague as to the identity of the agents, their objects, and exact methods. He was, however, definitely convinced of the reality of these influences. Over and over again attempts have been made to shake his delusions, but he explains everything on the basis of what he terms an influence which prevents us from hearing these voices, which prevents him from demonstrating the conspiracy and unmasking the actors and their methods. By such an explanation he, of course, puts all his beliefs beyond the need of any criticism.

A sample of his spontaneous talk is as follows:

"Because I am always hearing voices which put me on jurisdiction for special visitors. For instance, when I get a small plate of porridge the voices tell me that it is for a special visitor. I have also got wires in my head. I receive wireless messages to do stupid things, for instance to

commit suicide. I am under the jurisdiction of electricity and wireless waves. 'Sommyphones' act on my body, they force my thoughts, and are like X-ray tubes. I have never seen them, but I can feel what they are like." At this point he stared up at the far end of the room and called "Retract that name, and stop taking jurisdiction, Charles Punch." He repeated these words several times, and then explained that the "sommyphones" were now acting on him.

Mental Status (December, 1921).—He is tidy and smart in appearance, and willing to talk of the topics which fill his mind. He spends a considerable part of his time reading his Bible, but refuses to work. There is considerable emotional deterioration. He talks glibly of suicide, and gives vent to depressive ideas, with little or no accompanying affect. He is extremely deluded, and his thought is disordered. Memory, recent and remote, orientation and retention are good. School knowledge is fair, except simple calculation, which is poor. General knowledge is fair, and intelligence is deficient generally. Apperception is vitiated by his delusional ideas, which color every incident of his life.

CASE 4.—J. G. Admitted May 17, 1918, to the Royal Mental Hospital, Gartnavel. Age 36. Married. Chauffeur.

He had been admitted to Glasgow District Mental Hospital on September 8th, 1917. His wife stated that he joined the army in November, 1914—the Royal Naval Air Service. He was discharged in 1915, because the Armourer Car Section was abandoned. He was called up again in June, 1917, and was sent to Woolwich to the A. S. C.

He became mentally ill in August, 1917, was sent to the Royal Albert Hospital; transferred to Woodilee in September, 1917. There was no known heredity: he had been a steady worker, and never peculiar. Latterly, however, he got depressed and run down, seemed to have delusions and hallucinations.

On admission he looked depressed, confessed to hearing voices, but said that they did not worry him. He was dull and reticent, complained of headaches, of being run down.

In May, 1919, he is described as being rather better, but one day while in the court he struck suddenly and impulsively a perfectly quiet, harmless patient, who had not provoked him. On being asked for an explanation he stated that the patient had been attempting to work something on him.

In January, 1920, he is described as being full of cryptic threats: he "could track them down—why was I called up a second time? You were the doctor that ran away and let your sergeant enlist me." He thinks that he is be being kept here for experimentation with quinine because he was a thief, and so on.

In January, 1922, his mental status was as follows: His demeanor varies. Usually he appears dull, and does nothing all day long, but at times he is brighter and industrious. He is most commonly depressed to a varying degree, but is occasionally happy enough, and smiles to himself. There are episodes of irritability and suspicion in his depressed periods.

There is a diffuse persecutory trend, and he tends to be suspicious and uncooperative during examination. There are auditory hallucinations. Orientation is correct in all fields. Memory, recent and remote, is good. Retention is accurate. School knowledge is good. Knowledge of recent events is poor. Apperception is poor, partly from lack of interest. General intelligence is fair. There is some disorder of thought. He has a slight amount of insight.

The physical status is noteworthy in this case: He has recurrent attacks of sickness and diarrhœa. He is pale and haggard in appearance. The pulse is rapid and its tension low. There is a diffuse, brownish pigmentation of the skin, especially of the nipples. A degree of Addison's disease is evidently present.

It has also been suggested that the preponderance of paranoid types of disorder, which has been commented upon above, is an outcome of war conditions—the association of psychopaths with men only over long periods of time having presumably stimulated homosexual tendencies. A comparison of the figures given above with these for 204 dementia præcox cases in this hospital (exclusive of service patients) at the end of the year 1921, is interesting:

	Service patients. *Per cent.*	Private patients. *Per cent.*
Dementia præcox, simple	21	11
hebephrenic	2	13
katatonic	9	17
paranoid	68	59

It will be seen that there is no very great discrepancy in the two series of figures, except that the hebephrenic type is more common among these civil cases. On the other hand, the proportion of "simple" cases to "paranoid" types is actually larger in the service patients than among the general hospital population.

These dementia præcox types of reaction occurred very early in the army career of many of these patients. Thus, the following patient had been only two days enlisted, and was still living at home, when he broke down. Such cases usually show a definite psychopathic predisposition. It is not surprising that in a personality of such low resistance the mental change should be permanent.

CASE 5.—J. M. Admitted July 3, 1918, to Royal Mental Hospital, Gartnavel. 23 years. Single.

He had been admitted to Glasgow District Mental Hospital, on August 13, 1917. His parents stated that there was no heredity. His younger brother

was recorded as "missing." This upset him, and he joined up immediately afterwards (January, 1917) but broke down in two days, apparently upset by his parents' grief. He complained of pains in the head, and of being "absolutely done." He was sent to Duke Street, then to Lenzie and Dykebar, from which he was discharged in May, 1917. He was at home for two months, then became worse, was removed to Glasgow District Mental Hospital and then here.

Personal History.—Lost an eye (from a missile) at 10 years of age. Left school at 14; in 6th standard. Thereafter carried milk, and then worked for an engineering firm. Had septic poisoning (of a finger) just before enlisting. He was always a quiet boy, much attached to his mother. He did not shun company, however, and had boy chums. Was serious in his outlook, very sensitive, but not easily discouraged.

On admission to this hospital he was in a dull, stupid condition. It was most difficult to get any coherent history from him; he was a poor scholar, said that $12 \times 9 = 84$, that $17 + 8 = 22$. He could not tell the day, the month, or the year. He was careless and slovenly in his appearance, took little interest in anything.

In May, 1919, he is described as working well with the garden party, as brighter and brisker, and as improving. Still admits that he hears voices; these voices threaten him, say that they will "go for him." Talks also as having lost control of his body, of noises and voices in his stomach, of "the body twitch." He thinks too, that people are underneath his bed telling him to "get out of that," and he has to drive them away by telling them to "get to hell out of there."

November, 1921, there has been no change in his condition. He is quiet and well behaved, but a little restless during examination. He is apathetic and contented, notwithstanding his hallucinations and persecutory delusions. His remote memory is defective for dates. He confabulates and is suggestible. His recent memory is good, but he is imperfectly oriented. School knowledge, on the whole, is fair, but simple calculations, general knowledge, apperception, and general intelligence, are very poor. Attention is good, but apprehension is imperfect. His thought is disordered and obstructed. There is thus a considerable degree of dementia over the entire field.

On the other hand, in some cases, the psychosis occurs after a long period of war service, in men of apparently good make-up, but with perhaps a hereditary taint, and usually following on wounds or infections.

Case 6.—G. S. Admitted January 26, 1921. 28 years. Single.

Family History.—His father committed suicide. Patient was the third son of a family of eight: he was a healthy boy and developed normally. He was quiet, reserved, shy, sensitive, did not make friends easily; clever at school. After leaving, he was a good steady workman. He was a Territorial. and was called up in 1914. In 1916, he was sent home with

"trench feet." Later he was wounded in the chest, and later still in the arm and leg.

In February, 1919, he was noticed to be peculiar—said he heard something like a clock ticking. He was tried at home, but he was so difficult to manage, and refused treatment, that he had to be sent to Woodilee. He seemed also to hear voices. He was admitted to Woodilee on October 21, 1919. There he was facile, indifferent, and very delusive in his ideas.

On admission to this hospital he was quiet, though inclined to be restless at times; his habits were rather dirty, he spat anywhere and everwhere; he did not seem to appreciate his condition. In conversation he was incoherent—when asked if his head felt mixed up, he said that he wanted "the mixture out." "Why were you sent to Woodilee"? "For taking a shave I was not entitled to." Often his answers were flippant and off-hand. His memory was fair; he gave an account of his life, told about his service abroad, how he had been wounded, and what hospital he had come from. He was correctly oriented, his ability to calculate was good. When asked directly about hallucinations, he said that he heard voices, and that at times also he had visual hallucinations.

Since his admission he has shown a very definite improvement in his physical health, and mentally he is more amenable and better tempered than on admission. He still answers in a flippant, and often an incoherent way. He refuses to employ himself.

The type of individual, and the nature of the attack following a period of war strain, would seem to indicate that the case is one of dementia præcox. He has, however, been very badly wounded, and this is a case where one feels that apart from his war service he never would have developed such a mental disorder.

Case 7.—F. McA. Admitted December 28, 1918. 34. Single. Sergeant, 1st Seaforth Highlanders.

Family history was negative.

His birth and infancy were normal; he reached the *Vth* standard at school; and joined the army in 1905. He served with the Connaughts, and then with the Seaforths. Was in India for eight years, where he is stated to have enjoyed good health. When war broke out he went to France, and had no leave until he had been there for a period of eight months. On coming home for seven days, his family thought that he was in first class health. He returned to France; later was sent to Mesopotamia, and while there he complained of the heat. He was sent to hospital with a nervous breakdown. About December, 1917, he was admitted to Murthly War Hospital, and from there was removed to Dykebar. At Dykebar he was described as depressed, taking little or no interest in his surroundings, and could not be induced to speak. He looked about him suspiciously, as if apprehensive of some impending harm. He attempted suicide by strangulation.

Since his admission to this hospital, the patient has been in a dull, morose, apathetic condition, with occasional impulsive episodes. Sometimes he

has talked more frequently than at others, but at such times he expresses freely delusions of persecution, says that he is being followed, that electricity is being worked on him. He also stated that he was doomed, that his condition was incurable, that he was suffering from syphilis. During the conversation he was very irrelevant and incoherent, seemed to be very suspicious, said that medicine had been sent to him which had been put on the face of the man in front of him, and he said "If I am on God's earth I can't steady it." He admitted that his head felt mixed up and confused, but he was correctly oriented for time and place.

Progress.—In June, 1919, he was treated with thyroid extract, without improvement. As a general rule, he keeps very much to himself, and often may be seen admiring himself in the glass for long periods of time, when he looks at himself, mutters to himself, and twirls his moustache. One morning the M. O. said "Good morning, Sergeant," whereupon the patient replied "I am not a Sergeant, I am Sir F. McA," and then he shouted out the words "Company—'Shun'" in the usual regimental manner.

At present (January, 1922), his mental status may be summarized as follows: He is narcissistic, yet untidy; impulsive at times, but as a rule placid and mildly euphoric. His thought is much disordered and he talks always past the point when questioned. He is grandiose, but seems no longer to entertain persecutory ideas. His talk centers almost entirely round army experiences, and he tends to falsify his present environment in the same light. His orientation is consequently very defective. His memory is bad on the whole; he confabulates and is suggestible. His school knowledge is, however, fairly well retained; general knowledge is very poor. General intelligence and insight are nil.

This case is one of dementia præcox in a man who seems to have had an excellent record as a soldier, and to have done well. It seems that the exciting factor was probably the strain of service, and also probably the heat in Mesopotamia.

In one of our cases a very definite psychosis existed before the patient was enlisted. The case is a striking illustration of the need of a mental as well as a physical examination of recruits.

CASE 8.—R. A. S. Admitted May 17, 1918, to Glasgow Royal Mental Hospital, Gartnavel. 36 years. Single. Clerk.

Personality.—He was intelligent and industrious at school, and a favorite of his teachers. He got on well with his brothers and sisters, being especially attached to his eldest sister. Was very steady and good-living, and was a member of a Y. M. C. A. choir. He did not go out much, and lived very much by himself. Played games, but was fonder of study; was not conceited, but was sensitive and easily slighted. He was generous and easy to get on with; but after his father died he took his place and liked to get his own way.

A brother suffered from convulsions in infancy.

The patient was a strong, healthy lad (the eldest surviving of a family of seven), and did well at school. He went to Canada in October, 1910,

but in 1915 peculiar letters were obtained from him, some saying that he was coming home, others that he was not. It is thought that there was a girl in the case. He came home unexpectedly in August, 1915, and apparently was upset about this girl. He talked about "thought transmission," said other people could read his thoughts, that the police and the Roman Catholics wanted to murder him, and he wrote strange letters to various people. He joined the army in January, 1916, and was discharged in October, 1916. He thought the vaccines were to poison him, that they wanted him to go to France to kill him. He came home, and obtained several positions, but never was able to retain them. Said that the people in the offices were stimulating his nerves. He was troubled about smells, abused his mother, struck his brother and sister, and in December, 1917, was sent to Duke Street, and to Woodilee on January 5, 1918. On admission he is described as being in fair bodily health; no apparent organic disease. His pupils were unequal, but they reacted to light. He had a smiling, suspicious expression, said that his health was bad, that the food seemed to do him harm, that he would feel better without it. He explained his trouble as being due to "over-stimulation of the nerves" and to "thought suggestion," and this was all brought about by the love affair, and by the strain of business in Canada.

Following his admission, he kept to himself, did not mix with others, said the environment made him ill; he was strangely suspicious, would not answer questions frankly, refused to do any work. Later he is described as having no insight, as constantly asking for privileges, as being very suspicious and delusional.

On June 8, 1919, the patient gave a long, and coherent history of his life. He told how for 12 years he had been a clerk in the observatory in Glasgow, that he then emigrated to Canada, where he was employed with firms manufacturing scientific instruments. While in Canada he seems for the most part to have been an efficient clerk, and to have got on fairly well with his fellows and with his employers. He told how in Winnipeg he was convinced that the man he was working with meant well by him to begin with, but later he came to hate him, and to attempt to injure him by slander. The patient finally resigned his situation, and returned to Toronto. He obtained another position, but soon became estranged from his employers, and thought that his former associate had been slandering him. He began to be worried by ideas of thought-reading, and ultimately he resigned his position and came home. Since returning to this country he thought that people were constantly reading his thoughts, and had turned against him. In the army the same persecution followed him.

A later note in the case-book in November, 1919, states that there is no getting in touch with this patient; he keeps inquiries at "arm's length," and will talk about nothing except his release, and the work that he could be doing. He is under the impression that he is undergoing a continuous course of mental treatment. He describes the influence as hypnotic, says it prevents him from working. On one occasion he complained of the influence of the females, and pointed vaguely to the female division of the East House,

said that it was ruining him physically. These ideas and imaginations, he is sure, are introduced from without, because they are quite strange; sometimes they seem to reach his consciousness in words, sometimes as ideas. He thinks the doctors may have something to do with it, but how, or why, except with some mysterious scientific motive he cannot think. On several occasions he has been seen laughing loudly to himself, and he has stated that before returning from Canada he was convinced of a conspiracy, and wrote to the chief constable about it. In September, 1920, he stated that his whole body had been affected by conditions here, that the different organs of his body had been destroyed, his brain, his lungs, his heart, his kidneys.

A review of his mental status in February, 1922, may be summarized thus: He is strained, uneasy, and excitable in manner; introverted; and suspicious in his attitude. There is a diffuse, poorly-systematized persecutory trend involving his whole environment. Emotionally, there is an insufficient response, but not a complete slumping. His thought tends to incoherence. His chief topic of concern is marriage, but he is of low sexual capacity. From his own account it appears that he has had some degree of father attachment, and has always preferred the company of men. His memory, recent and remote, is good. Orientation is correct, and retention accurate. School and general knowledge, apperception and attention are good. General intelligence is good also, and he displays a desire to impress the examiner. In this case therefore, the dementia is chiefly in the emotional sphere, and is comparatively slight in the intellectual field.

A case of dementia præcox of the paranoid type. The fact that he expressed these ideas of persecution, and apparently suffered from hallucinations for several months previous to his joining the army, should preclude him from being a "service" patient.

Of the two katatonic cases detailed below, one broke down very early in his war service; the other after years of service, and wounds. The former was definitely of a psychopathic constitution; in the latter no very evident predisposition was present.

CASE 9.—J. S. Admitted January 27, 1920. Single. Blacksmith. 30 years of age.

History.—He got on well enough at school, but was very sensitive. Before joining up in August, 1916, he was not feeling well, and had a "nervous breakdown." Was never on active service, but worked in an aerodrome, and saw some fatal flying accidents. These affected him greatly, although he was in no danger himself. He became mentally ill, and was admitted to Dykebar Hospital, where he seemed so well that it was proposed to allow him home. He developed catatonic symptoms, however—rigidity, with periods of excitement, with mannerisms and gestures suggestive of his former employment. Once he stood up in bed in a pugilistic attitude, saying "Let me get at him."

On admission to this hospital he was pale and thin, and his feet were œdematous at nights. There was slight albuminuria. He co-operated readily in examination, responding to questions with exaggerated promptitude. He sang out his answers in a loud, nasal tone, ending every sentence with "Sir." He worked well and settled down here with the utmost complacency. Happy and contented, he danced and played football well and energetically. He had no insight.

Progress of Case.—February, 1920. Maintains fixed attitudes—will sit for hours at a time stiffly upright, chin in air, and with his hands on his knees. He works very well mechanically, and is stereotyped, dusting the same object over and over again. He takes his food in a curious rhythmic fashion, shovelling it into his mouth with knife and fork in turn, the circuit continuing unceasingly to the end of the meal. Flexibilitias cerea, echopraxia, echolalia, and excited periods are all prominent—in fact, he is a text-book type of catatonia dementia præcox.

Case 10.—D. B. Admitted December 18, 1918. 24. Single. Stone-mason.

Family History.—Negative.

Personal History.—He reached at school the highest (supplementary) class. He was always very quiet, and not very sociable; cheerful, and not easily discouraged, hardworking, dutiful, and not vain.

He was a stonedyker by trade.

This patient was admitted to Dunblane War Hospital on August 16, 1918, from the Maudsley Neurological Hospital, London, where he had been diagnosed as a case of neurasthenia. In France, on July 6, 1918, his O. C. had reported him as suffering from some form of mental illness, as being subject to uncontrollable fits of laughter, and of talking to himself.

His history was to the effect that he had enlisted in the Territorials in March, 1911, and in June, 1915, went to the Dardanelles. While there he suffered from dysentery, and in the beginning of 1916, he received his discharge as time-expired. In June, 1916, he re-enlisted, went to France in December, and in April, 1917, was wounded in the left foot. He returned to France in August, 1917, and about December was transferred to the Labor Corps on account of stiffness in the little and ring fingers of his left hand. At Dunblane he seemed foolish, smiled in a stereotyped way, and admitted that he felt strange and giddy at times. During his stay in the hospital he became more foolish in his conduct, showed mannerisms, took no interest in anything, maintained fixed positions. On account of his mental condition he was transferred on August 30, 1918, to the Murthly War Hospital. He was discharged from Murthly War Hospital on November 29, 1918, but shortly after returning home, he again developed mental symptoms, was admitted to the Duke Street wards, and transferred here. On admission he was in good bodily health, but looked dull and stupid; said that he was mixed up. He gave a very inaccurate history of himself, said that he was in Edinburgh, that it was the 17th of November, and he did not know the day. He was very apathetic and uninterested; when asked about laughing to himself, said that he did so, but did not attempt to give an explanation.

He did not make any spontaneous remarks, avoided the other patients. His behavior in general seemed to indicate that he was suffering from auditory hallucinations.

During his residence in the hospital this patient has from time to time become violently excited and hallucinated. At such times he is very dangerous and impulsive, and on one such occasion he said that he was the Kaiser, and all powerful. On another occasion he demanded that the "haunting voice should be stilled." He talked about having been on the film screen for the last three weeks. These attacks of excitement last for a day or two, but usually can be cut short by means of a drastic purgative.

As a rule, he is dreamy and abstracted in demeanor, maintaining fixed attitudes. Echolalia is present. In these quiet periods, no trend is evident. His thought shows perseveration. Orientation is very defective. His remote memory is good, and his retention fair. School knowledge is fair, but general knowledge is poor. His attention is not good, and apperception in consequence is much impaired. His general intelligence is good.

This case is a good example of the katatonic type of dementia præcox.

It is noteworthy that three cases of paranoid dementia præcox of the grandiose type had been diagnosed before admission to this hospital as probable cases of general paralysis. In one of these, suggestive physical signs were recorded at one time, but there is little evidence of that sort now. In the other two there are no physical signs suggesting general paralysis; in one of them the blood Wassermann had been returned as positive, but repetition of the reaction on admission to this hospital failed to confirm this result. These cases are of sufficient intrinsic, as well as diagnostic, interest to merit quotation in some detail.

CASE II.—W. M. Admitted May 17, 1918, to Glasgow Royal Mental Hospital. He had been in the Glasgow District Mental Hospital since May 22, 1917. 42 years. Married. A mason.

His father stated that his son had been quite normal before he joined the army, that he had always worked hard, but had a poor home and a bad wife. His father blamed his wife for the patient's condition—she neglected him after he was discharged from the army on account of his arm. He had joined the army in 1914, and became ill after two years' service. He was first of all in Morningside, and then was transferred to Lenzie. His wife stated that he had always been healthy in mind and body, that they had been married for 18 years, that there were four children, three of whom were dead. His brother-in-law stated that he used to drink a great deal, and that he was of opinion that his arm wound was self-inflicted, and that this caused his mental trouble.

While in the District Hospital, he expressed numerous grandiose delusions: he is a "general, has won several V. C.'s and other medals."

On admission to this hospital, he was very delusional, said that he had come here with the Chief of Command of Scotland to take his place over for the military for the period of the war; he was waiting for a commission; said that he had six V. C.'s, two military medals, one Legion of Honour; that he had saved the Chief's life on two occasions. He stated at that time he was 31 years old, and that he had never been married. Other grandiose delusions were to the effect that he was suffering a penance for the King of Scotland and his connections, that the Chief is his son.

His right pupil was larger than the left: his knee-jerks were present.

During his hospital residence he has continued to express all manner of grandiose delusions in regard to his rank as chief of the army, in regard to his decorations, to his being here by command of the "higher powers." His spontaneous speech rapidly merges into incoherence, so that it is often impossible to follow his train of thought.

In February, 1920, a note is made to the effect that he "is here in military command over the estate, an officer in rank, with two V. C.'s—military service detective." He attributes everything to "The Observer" up in the Tower (name of Scott), who has had the patient "under attachment for 40 years," "working on him by magnets with perjury and slander." This persecutor, inconsistently enough, is constantly giving patient permission to "leave the estate unaccompanied." These "messages by permission" are handed in, in writing, two or three times a day.

This patient's record card states that there are scars on the anterior surface of the right upper arm, also on the outer surface and posterior surface. The right biceps is absent, the skin adherent to bone; the right triceps very flabby and wasted through want of use. The right elbow joint cannot be fully extended, pro. and sup. limited by half, by appearance part of humerus involved. An operation was done for the removal of dead bone, and the cause of this disability (which is given as June 22, 1915) is stated to be an accidental self-inflicted wound.

A Wassermann test at Woodilee was reported positive, and a note was made to the effect that this may be an early case of general paralysis, without any definite physical signs.

January 12, 1922. A complete physical and mental examination was done. No physical signs of organic nervous disease can be detected—the pupils are small, and slightly unequal, but the reflexes are active. The tendon reflexes are equal and not exaggerated. No facial tremor.

Wassermann reaction (blood) negative.

Writing is good—no tremor or spelling defect.

Speech is unimpaired.

His mental condition is much more suggestive of a præcox condition than anything else. He is quiet and agreeable: emotionally he is very demented, remaining placid in spite of his ideas of persecution, and his detention here; there is, in fact, a significant schizophrenia, his smile when he is describing his tribulations is not a mere paramimia. Retrospective falsification is evident with regard to his persecutory delusions. His memory,

recent and remote, and his retention, are good. School and general knowledge are poor (his education was only up to a low standard). His apperception is poor, and his general intelligence very defective. His thought is perseverated and disordered, and shows great poverty of ideas.

The case strikes one as being in the nature of a dementia præcox of the paranoid type. There are no suggestive physical signs: there is no memory defect, the personality of the man is well retained, and neither physically nor mentally do there seem to be sufficient signs to suggest general paralysis of the insane.

CASE 12.—F. H. Admitted December 20, 1920. 43 years. Single.

He had been admitted to Glasgow District Mental Hospital on February 17, 1920, where he is described as simple, childish, and persecuted.

Personality.—Left school at 12 years of age, in VIth standard. He got on well at school, and at his work he proved himself a reliable workman. He was very determined, and not docile. He was sociable, and drank in moderation; was easy to get on with, being described as "jolly and free, always smiling, and well liked." He was a good footballer, and a keen trades-unionist, with some oratorical bent.

History.—The available details of the onset of his illness are scanty. In July, 1917, some strange letters were received from him, and while on leave from France, in February, 1918, he did not seem to realize the necessity for going back, and overstayed his leave. He was indolent, dull, could not enjoy himself, and did not realize his condition. He was accordingly admitted to Stobhill Hospital.

On admission to this hospital he was quiet, and co-operated, but maintained that there was no reason for his having been transferred here. He stated that he was feeling quite well, that he was not mixed up in his head, and that he was happy because he expected to get home soon. He was able to give a fair account of himself, stated that he had been a letter press printer, and, in general, gave an accurate account of his life. He joined the army in 1917, and served for one and a half years in France in a labour battalion. Eventually he was invalided and sent to Murthly War Hospital, where he was for a period of from three to four months. He then went back to work, but spoiled some jobs, and was discharged. He does not know why he was taken away to Gartloch, but says that people began to bother him with what he describes as "social talk"; he "lost work through blackmail." A man in his company in the army had stated that "he should receive the V. C. because he had been attacked seven times mentally and not paid for it." He uses all sorts of peculiar expressions, says that he is suffering from "slow gravity." His orientation is correct, he was able to do simple calculations correctly, and his memory for recent and remote events was quite good.

Progress.—During his hospital residence he has been quiet and harmless, always talks in the same way—tries to explain all this "social talk" business, and for this purpose he rises at the end of each meal in the dining-hall and speaks to the assembled patients at great length, but with little sense or

coherency. Denies that he is a patient, says that he is really the head attendant, and has no appreciation of his condition. He refuses to occupy himself in any way.

October, 1921. Orientation for place correct, but for time a little inaccurate (1920 for 1921).

Memory—remote, good for events, but not for dates; recent, good.

School knowledge fair, except simple calculation, which is poorly done.

General knowledge very poor. Writing—good. Neologism.

Apperception defective. (Ebbingham.)

General intelligence defective.

Attention good.

Emotionally he is much deteriorated—he is placid in spite of his persistent requests to get away.

Physical Status.—No physical signs suggestive of general paralysis of the insane are present. Wassermann reaction negative (blood).

The whole picture is much more that of a dementia præcox of the paranoid type.

CASE 13.—J. B. Admitted April 16, 1919. 36 years. Single. Baker.

Personality.—He was clever at school and at his trade, played games and made friends readily, being aimable and sociable, although quiet. His temperament was cheerful.

History.—He went to Canada in October, 1912, to work at his trade (of baker). In 1915, he was in hospital there for "melancholia." He came home in 1915, apparently fully recovered, took a job here, and seemed well when he joined the army. He was sent to Mesopotamia, and while there became depressed and "talked nonsense," being in consequence invalided home.

He had been admitted to Woodilee on March 24, 1919. While there he was described as suffering from grandiose delusions, said he killed the Kaiser and also his mother, that he had extraordinary gifts, and could do anything he liked. He was strange in manner and appearance, and had no proper appreciation of his position. He was irrelevant and absurd in his conversation.

On admission to this hospital he was quiet, and conformed to the general routine. He talked readily, and in a grandiose strain. He described himself as one of the household guards, said that he knew royalty and how to treat royalty; was egotistical, and felt that he had extraordinary gifts. His conversation was incoherent, and often his answers to questions were quite irrelevant. He was correctly oriented, his memory was good, but he totally lacked any insight and judgment.

Physically, there were certainly signs suggestive of general paralysis of the insane, his pupils were irregular, and reacted sluggishly, his tendon reflexes were exaggerated, there was tremor of the tongue, and some slurring of his speech.

Progress.—During his hospital residence there has been no particular change. As a general rule he is good humored, works wonderfully well

with the garden party, and, on the whole, is contented, although at times irritable.

He is restless and excitable in manner, laughs foolishly and emotionally. Is facile. His memory is good for events, although confused for dates. He confabulates. His orientation is correct in all fields. School and general knowledge are good. Apperception is good, but general intelligence is defective.

Physically, there is no speech or writing defect, and no tremor except when he is excited, when there is a generalized tremor involving neck and limbs. The knee-jerks are equal and not exaggerated. The pupils react to light and accommodation. The only phenomena now (1922) suggestive of general paralysis are a slight pupillary irregularity, and the fact that the reaction to light of the right pupil is sluggish. The Wassermann reaction in the blood is negative.

An analysis of the mental level of the 38 præcox cases at present in this hospital was made. Eight of the cases were inaccessible to ordinary methods of examination. An investigation of the intellectual level in the remaining 30 revealed the following: Orientation was correct in all fields in nearly half the cases; 25 per cent were approximately oriented, and 35 per cent showed considerable defect, varying in degree, but rarely amounting to entire disorientation.

The memory for remote events was accurate in 35 per cent, fair (*i. e.*, with discrepancies in dates) in 50 per cent, and poor only in 15 per cent (in only one of the latter did the memory appear an entire blank). Recent memory showed very similar figures. School knowledge could be said to be good in only four cases (or 13 per cent), but allowance must be made for the previous educational level of these patients In five cases, however, the grasp of school knowledge was very definitely impaired, and in these cases there was usually an associated defect in general memory. In simple calculation, however, at least half exhibited a striking defect.

General knowledge was defective in nearly all cases; only in three did it tend to approach normal level.

Apperception (as revealed by test-stories) was nearly always markedly defective. Judgment and general intelligence showed a corresponding defect.

In every case, except two, there was a disorder of thought, ranging from bizarre ideas to utter incoherence.

Attention was in most cases fair or poor, and in some it tended

to fluctuate. In most the inattention was dependent on apathy; in others it was obviously due to preoccupation with their own thoughts.

Only one case showed even a slight amount of insight.

In all cases there was great emotional alteration fundamentally in the direction of apathy, but in some cases combined with facility, or mild euphoria, or irritability.

In all of them also, volitional disorder was more or less marked. More than half are unemployable. Of the remainder only a few work well, and then usually under considerable supervision.

It is obvious, therefore, that these patients as a whole exhibit a degree of dementia which does not augur well for the future.

Five cases are outstanding, in that they exhibit a much less advanced degree of dementia than the others. They are of the paranoid variety; and of the type which, at least in the early stages, are apt to give rise to difficulty in diagnosis.

Constitutional Inferiority (Mental Deficiency).

This is, par excellence, the class of patient that by a simple mental examination could have readily been excluded from the army, or, if enlisted, could have been allotted appropriate duties. Unfortunately, the demand for large armies seems to have caused these men to be passed into the army, and, if physically fit, sent into the trenches, even in cases where the mental deficiency was obvious at a glance. The inevitable result has been that they have formed a large proportion of the cases passing through military hospitals, and they now form a considerable proportion (probably only exceeded among the service patients by the dementia præcox class) of the permanent population of our mental hospitals.

Some of them were admitted to hospital simply on the ground of their previously existing mental deficiency. The following case will serve as an example:

Case 14.—S. S. Admitted to Glasgow Royal Mental Hospital, Gartnavel, January 17, 1919, from the Eastern District Hospital, Glasgow. 26 years. Single. Duration: "For years."

His mother stated that he was one of six. He was always more backward than the others, had typhoid and scarlet fever at eight, and this had helped to keep him back. There was no heredity. He had learned to work as a machinist, was at Fairfield Yard for three years, and earned as much as 35/ a week. He joined the army on July 17, 1916, was attached

to the 9th Camerons (Labour Battalion), and a year later went to LeHavre. After two months in France he had a nervous breakdown, and was sent home. He was treated for eight months in Dykebar, then was discharged, but as he could not get work he joined the R. G. A.—then later was sent home, and discharged as unfit. He became dull and depressed, wandered away from home, and eventually was sent to Eastern District Hospital, and then to Gartnavel. The medical certificates described him as being simple and foolish in appearance, conversation, and conduct. He was lacking in intelligence, could not apply himself to work, had been found wandering about the city, begging, and living on charity.

On admission he could not give any very accurate account of himself, had no memory for dates. His intelligence was of a low order: he could not add correctly $17 + 8$, saying it was 21; $12 + 8 = 32$.

During his hospital residence there has been no special change in his condition. He is foolish and childish, and mentally defective. He frequently asked to be discharged, but he is so obviously unreliable that it has not been thought wise.

A note on October 21, 1921, states that he feels quite well, that he is working hard. Admitted having had a nervous breakdown, and had been feeling shaky ever since he had been in Le Havre. He could not tell what three half-crowns amounted to, said that $3 + 4 = 8$. He could not say the alphabet. His memory was found to be fairly good, both for recent and remote events, and he had a fair grip on matters of general information. He showed a certain amount of echolalia, he was simple in his speech and manner, was happy enough, very poorly developed as regards general intelligence, showed only the most superficial trend of thought, and a total lack of judgment.

This patient is an example of constitutional mental deficiency. He has never at any time had any hallucinatory or delusional condition.

Others developed a psychosis, usually of a dementia præcox type, but occasionally, as in the following case, of another kind. This patient is suffering from a simple depression following the loss of an arm:

Case 15.—T. G. Admitted January 26, 1921. 24 years. Single.

Family History.—Negative for nervous and mental illness.

Personal History.—Backward at school, and left at 14, when in IVth standard. He is stated to have been always "dull" in his mood. His sister-in-law says that, in fact, he seems more lively now than before he lost his arm.

At school, he was very fond of playing shinty. He did not mix much with other boys, but did have one particular pal of his own. After leaving school, he became a ploughman in a very lonely spot, and remained at this job until called up under the Derby system.

As an example of his manner—before he went to France, on one occasion he was invited to dinner (with a number of friends), but would eat

nothing; later he was found alone, consuming buns which he had bought himself.

During the war he served in the Black Watch, and was in France for about eight months. He was wounded while in France, and his left arm was amputated at the shoulder. He refused to have the wound dressed while in hospital in England.

He was admitted to Glasgow District Mental Hospital on September 2, 1919. While there he had threatened to commit suicide. He was described as simple-minded, and as showing stigmata of degeneration.

Since admission to this hospital the patient has for the most part lain quietly in bed, with his head covered with the bedclothes. Whenever spoken to he utters one request, and that is that he be allowed to die. On various occasions he has threatened to throw himself out of the window, or to attempt to injure himself. Complains of his head being sore, says that he does not want to have anything to do with anyone. His memory, recent and remote, is good. His school knowledge is poor, and his general knowledge very limited. Orientation is correct, and apperception (by the ordinary tests) good. Apart from his depression, and his wish to die, he has not any peculiar ideas. He never has given any evidence of hallucinations or delusions.

The case seems to be one of depression, occurring in a boy who has suffered a severe physical disability.

Where a præcox-like psychosis developed, it was frequently transitory and ended in recovery to approximately the pre-war level.

Case 16.—W. D. Admitted October 15, 1918. 31. Single. Carter.

Personality (from brother).—Described as smart all his days. Short-tempered. Drank a good deal, and was always affected badly by alcohol. Not easily led, except to drink. Was "pretty constant" as regards work. Was a very good worker. He was regarded as the opposite of simple. Always cheerful—fond of music and singing. Never had anything to do with women, as far as his brother knows—"did not trouble with them."

The history from the Lord Derby War Hospital showed that he had enlisted in August, 1915, went to Egypt in December, 1916, via France, but he lost the train by getting drunk, and was put in jail for striking a French sentry. He was kept in the guard-room at Marseilles, and eventually arrived in Egypt in May, 1917. He was three weeks in the firing line in Palestine, and was then sent to Cairo to be under observation. His Wassermann reaction was negative, and he attributed his mental attack to two severe frights he got from Turkish shells which burst in his bivouac. At Warrington he complained of frontal headache, was excited and hallucinated, said that he was going to live for ever, that God was always by his side, that he was endowed with eyes that could see what others could not. His brother stated that the patient had been normal in every way up until his present illness. He had done well at school; one brother was a patient in Woodilee Asylum. Further notes from Warrington stated that he was under the belief that the Blessed Virgin Mary visited him every

night and told him he was going to live for ever. He was inclined to be irritable and violent.

On admission to this hospital he was described as excitable and delusional. Said that every night the Virgin Mary was on one side, and the Devil on the other. He also complained of visual and auditory hallucinations. He was impulsive, attacked one of the other patients and knocked him down. His memory was good; he was well oriented for place and time, but he was grandiose, said that he should have got the V. C. in Palestine.

In April, 1919, he is noted as behaving in a more stable way. Constitutionally he is an excitable, erratic type of man, who seems to have reached approximately his normal condition.

In May, 1919, he was allowed out on pass, but the following day his brother came to the hospital and stated that he had been behaving in a strange way, that he had threatened his mother, and demanded money so that he might get drunk. In 1920, he was again given a trial at home, but again proved himself untrustworthy, and had to be returned.

October, 1921. He clearly recollects his visual hallucinations, and takes pleasure in recalling them in detail.—"The nicest sight I have ever seen in my life." He says they do not occur now, and thinks they must have been due to imagination but he adds that he has seen visions all his life.

Auditory hallucinations (Virgin Mary's voice) still occur.

His mood is now, as a rule, very cheerful, and almost euphoric. He is contented, easy-going, and amiable usually, at times he is excitable and impulsive.

His memory and school knowledge are good. Simple calculations are smartly done. His general intelligence is moderate.

This also is a case in which there is a large measure of constitutional defect, with a transitory psychosis of a dementia præcox nature.

In the above case, the pre-war mental level of the patient has been regained, but in others the psychosis has resulted in a profound dementia.

Case 17.—W. B. Admitted July 22, 1918. 30 years. Single. Cause is given as heredity.

He was transferred to this hospital from Warrington, where he was diagnosed as a case of mental deficiency, with a super-added psychosis, in part due to the stress of the war, and in part due to chronic alcoholism. A brother is in Glasgow District Asylum, Gartloch.

The patient reached standard II, was defective at reading and writing, and could not do simple sums. He had been an unskilled labourer earning about 24/ a week. He had fits as a child, and spent a good deal of his money on drink. He enlisted in June, 1915, went to Egypt July, 1916. Was under fire once. Apparently he was an unsatisfactory soldier, and in May, 1917, he was given 14 days' field punishment for insolence. In the guard tent he struck himself on the head with a mallet. In June, 1917, he suddenly dashed out of bed and drove his head against the wall, struggled violently, and had to be put under restraint. At Lord Derby War Hospital he is

described as having a degenerate appearance, an explosive stammer, and difficulty with simple mental processes. He varied in his emotional condition, at one time would be sullen and sulky, at another time excited, expressing delusions of persecution by everyone. The main feature of his condition was his impulsive, threatening behavior. He would frequently attack the attendants without any cause, apparently owing to the fact that he felt he was being ill-treated and "boycotted." His Wassermann reaction was negative. He stated too, that while he was at Warrington they used to put powder on the floor and on the towels so as to do him an injury. He could not read nor do simple sums in arithmetic.

On admission to this hospital he was excitable and irritable; felt that he was being "twisted" and "boycotted," and readily told of his various delusions of persecution. In addition to these delusions he admitted hearing voices. He had no insight into his condition, felt perfectly well, and said that it was wrong to detain him as he was quite fit to work.

Progress.—In February, 1921, he is described as behaving in a quieter and more orderly way; talks to himself, laughs foolishly, constantly interjecting such remarks as "Good luck, Doctor, good luck." Very untidy and slovenly in his appearance, cannot be trusted, and always has to be carefully watched.

January, 1922. He is apathetic and contented, indolent, and unemployable. Mannerisms and echolalia are evident. No persecutory trend is now apparent. His thought is much disordered, and his conversation very incoherent, with a tendency to perseveration. Orientation is approximately correct. Remote memory is defective for dates. Retention is bad. School and general knowledge are very poor. Attention is bad, and apperception and general intelligence are nil. The dementia has thus reached a very profound degree.

With regard to their war service, 18 of these served abroad, and their average length of service abroad was 10 months (as compared with 1.2 years' service abroad for our whole series). Three suffered from shell-shock, so-called—in many such patients, the label "shell-shock" was attached when their behavior under stress began to give evidence of their mental deficiency, such behavior being often of a sort to make them dangerous to their comrades. Three of them were wounded, three had infectious fevers, and the remainder (13 in number) simply broke down with the stress of service.

Manic-Depressive.

All but two of these have now recovered, and this is in accordance with the prognosis of such cases in general. It seems advisable to inquire into the reason for the non-recovery of the

two cases remaining in hospital. The cause is not found to lie in the severity of the stress undergone—one of them developed a psychosis within a week of enlistment, and the other, a ship's cook, broke down in the course of his first voyage—but must be sought in a pre-existing insufficiency. Thus, one of the two had been in a mental hospital on several previous occasions, and the fact that the other became ill within a few days of enlistment is clamant evidence of instability.

General Paralysis.

Three cases of paranoid dementia præcox, which had been diagnosed as general paralysis, have been detailed above.

Of 19 cases admitted to this hospital, 16 have died before this inquiry was begun. The data as to their length of service, etc., are very deficient, but it is interesting to note, from the point of view of sufficient examination on enlistment, that one is recorded as having broken down within five weeks, another within three months, and another within six months. On the other hand, nine others in whose cases data are available, served an aggregate of 19 years, or an average of 2.1 years—practically the average length of service of the whole series of cases at present in this hospital.

Hotchkis remarks that certain of his "cases tend to confirm the view that in many cases at any rate the strain of active service does not materially affect the progress of the disease."

Traumatic Insanity.

The following case is of interest on account of the still comparatively small amount of literature on this subject, the complexity of the factors involved, and the time elapsing from the time of the head injury to the onset of the psychosis. Notwithstanding these last two considerations, the psychosis is of the recognized traumatic type.

Case 18.—P. M. Admitted December 20, 1920. 35 years. Married. Miner.

Family history was negative.

His father stated that he did well at school, but that after leaving he had a serious accident in the pits. He was struck on the head and the frontal region, and now has a depressed fracture of the skull. For a long

time following this accident he could not speak. While in the army his sisters did not know much about him, but before going to Gartloch he had been drinking heavily, and had started to express delusions of a religious nature. He was admitted to Gartloch on July 7, 1920, and described there as quarrelsome and impulsive—*e. g.*, he threatened an attendant with a spade.

On admission to this hospital he was quiet, and co-operated well, immediately began to occupy himself, and to take an interest in things. Said that there was nothing wrong with him, that he had no complaint, that he was "in the pink" of condition. Denied being mixed up in his head, denied having fits. He joined the army first in 1906, and re-enlisted at the outbreak of war in 1914. He served in France and also in Salonika, and while there he may have had malaria and persistent diarrhœa. On account of these things he became mentally affected, and was taken to Dykebar. He has never been the same since, and, in addition, he stated that ever since the injury to his skull a very little drink had affected his head. He told how at the onset of his present illness people had been persecuting him, that he was a German spy, that they "tried to make a cod of him," and on account of these things he had become assaultive. He had some appreciation of his condition, because he stated that his mind became affected whenever he took anything to drink.

During the whole time of his residence in the hospital he has varied tremendously; at times he has been quiet and has worked well, but at other times he has been dangerously impulsive. During these impulsive periods he is very talkative and excited, gesticulates, talks a great deal about Christ and the Devil, and if crossed in any way he will strike out.

A detailed examination in January, 1922, revealed the following (his demeanor at the time being agreeable):

Mental Status.—His memory for personal data is somewhat confused as to dates, but is otherwise good for remote events.

His retention is poor.

Orientation is correct in all fields.

His school knowledge is very deficient, but he left school at 11 years of age. His power of simple calculation is poor. His general information is very limited. Apperception and judgment are very weak.

He is somewhat facile, and his desire to leave the institution is not based on a sane appreciation of his position.

He admits, and describes in some detail, visual and auditory hallucinations.

There is a diffuse persecutory trend.

His cerebration is slow, and his thought disordered.

Physical Status.—He is a well-built, muscular man of medium height. There is a scar, 1 inch long, adherent to the bone (which is depressed considerably at this point) in the upper left frontal region immediately in front of the line of the coronal suture.

There is a scar in the left epigastric region, said to be the result of an operation in the army in 1909. The nature of the operation is unknown to the patient.

There are no signs of organic involvement of the nervous system.

The type of mental disorder, with a history of impulsiveness and excitability after taking liquor, is one which can be described as closely associated with his previous head injury.

Epilepsy.

Two of the cases of epilepsy originating on service are of special interest in that a strong psychogenic element seems traceable in the etiology. This is suggested in each by a study of the personality, and of the circumstances of origin—amid unfamiliar surroundings (both men were away from home for the first time), and with a fear, conscious or unconscious, of the future. It is to be noted that in both instances, the patient (a) did not serve abroad and (b) had no history of pre-war epilepsy (*cf.* Purves Stewart [15]).

Case 19.—T. M. Admitted September 20, 1921. 27 years.

He was admitted to Glasgow District Mental Hospital on November 16, 1920, and notes from there state that he is an epileptic, and has been at times irritable and quarrelsome. His fits are stated to occur in batches of five, and they usually all occur within an hour or two. For a month or two previous to his admission here his mental condition had been greatly improved, and he had given less trouble than formerly.

Family History.—He is the eldest of a family of seven, all the others of whom are stated to be healthy. No history of nervous or mental disease could be elicited.

Personal History.—He was educated at Napiershall Street School until he was 14, having reached the highest class. He had worked during his life as a billiard marker, as a waiter, boots, labourer, steward. He says he left all these different positions because he was anxious for promotion. Before he joined the army he was engaged to be married, and the outbreak of war, with the consequent postponement of the marriage disappointed him greatly. He joined the army on September 5, 1914, but in March, 1915, was discharged because of flat feet. Ten months later he re-enlisted, but after being two months in training his first fit occurred at night time. In consequence of this fit he was discharged, but states that he himself had no realization of ever having had such at any time. He re-enlisted, and was discharged in all about five times, on the last occasion in 1919. He then returned home, and about 18 months previous to his admission, while acting as an attendant in Bellahouston, another patient threw a pot at him, and in consequence of this he gave up his position. He was admitted to Woodilee from Duke Street Hospital.

In regard to his fits, he stated that at first he had no aura, but that now he has a feeling of dizziness, a feeling as if he were going to fall and this sensation is referred to his forehead. Tinnitus also occasionally occurs in his right ear, sometimes before his fits, and sometimes apart from them. Following each fit, for an hour he suffers from a bilateral frontal headache. Between the fits he feels perfectly well.

Personality.—According to his grandmother, he seems always to have been a somewhat excitable, nervous type, who was easily discouraged and frightened, and after the fits he would be very irritable. It was on account of an assault on his grandmother that he was taken to the police office, and later to Woodilee.

Physically, he is a sturdy, well developed man. The right pupil was larger than the left, and a report from the Glasgow Eye Infirmary showed that he suffered from marked astigmatism of the left eye. The opthalmoscopic examination was negative. His ears showed a middle ear catarrh, which was not suppurative. His tendon reflexes were normal. The Wassermann reaction (blood) was negative.

Mentally, he described himself as feeling "in the pink." He answered smartly and correctly, and his mental attitude was one of optimism. There was no special disorder of his intellectual functions. He was excitable and tense in manner. His disposition was extremely egocentric, impatient, and domineering.

On September 25, 1921, he is described as having had a series of fits. One of them was described by an attendant as follows: "His gaze became fixed, he seemed to be gazing straight forward into the distance; then he began to turn to the right as if to hide his symptoms from the attendant; his arms went into clonic spasm. A few minutes later he came casually and coolly to the attendant, and asked him for a match."

On October 5, 1921, he had a major attack. He was sitting on a bed in the court, and, without warning, he fell forward on his face unconscious, and severely cut his forehead. He was put to bed, but when an attempt was made to remove his clothes he became very violent, used obscene language, resented any interference, and when an attempt was made to give him some chloral and bromide he spat it out.

The unusual feature about his case is the lateness of onset of the fits, but the whole temperament and personality of the individual would suggest that he had the so-called epileptic constitution. The fits on that account were a natural enough reaction to something which was difficult for him.

Case 20.—J. M. 22 years. Vanman. Admitted May 17, 1918, as a transfer from Glasgow District Mental Hospital, where he had been admitted April 26, 1917.

Family History.—Negative.

Personality.—He is described by his brother-in-law as a "very nice" lad. He was not considered nervous. To his mother he was very much attached. He had no girl friends, and with none of his sisters was he particularly intimate. His father described him as a "good boy."

At school he learned easily. He was capable at his work, business-like, and ambitious, with good common-sense, and not over-energetic.

He did not play games much.

He was self-reliant and a little vain and sensitive. He "wanted his own way a good deal," and was critical of others. He was rather shy, but trustful and generous.

About himself he was reticent. He was of a serious disposition, but was not readily depressed. He did not smoke or drink. Previous to joining the army he had never been away from home. The army "worried him," and every time camp was moved he thought he was about to be sent abroad. He had no fits until under orders for France.

The notes from Woodilee stated that he was an epileptic, that he had been troublesome at times, that he was in good bodily condition.

On admission to this hospital he is described as having fits nearly every day. His memory was good, and he was well behaved, but occasionally he showed irritability.

On July 1st a note is made to the effect that nearly every night he has had two or three fits, and usually one during the day. Bromide and chloral seem to have little effect on him. On September 25 there is a note stating that two weeks ago this patient ceased having fits, but was terribly confused and restless; he would get underneath the beds, take patients out of the beds and get in himself. During this week the fits returned—two or three each day—but he seemed clearer mentally. In November he is described as having a great many fits, four or five nearly every night—some of these are very severe, and others more like hystero-epilepsy. In April, 1919, he is described as gradually getting into a duller, more stupid state, and consequently was sent to the infirmary and put to bed. He took little interest in his surroundings, and at night slept poorly. On the evening of the 25th he appeared to be in a sort of delirium; he was restless, excited, rolled about in bed, made sudden, impulsive efforts to get out of bed. He picked at the bedclothes, and it seemed as if he were hallucinating. He misidentified people, said, "That old fellow used to be a teacher at school" (referring to the charge attendant). He recognized the place and the doctor, but said the day was Tuesday when it was Friday.

On the 8th of June, 1919, he is again described as having an excited episode. Accused one of the attendants of having stolen his new boots, his watch and chain, his pocket knife. He was every emotional and tearful, and had again to be put back to the hospital ward. He was so noisy and excited that he had to be given a hypodermic of hyoscine.

In February, 1920, he was having six to ten fits per day, and did not respond at all to doses of bromide of 40 grs. nightly.

Since January 1, 1921, this patient has been treated with luminal, ¼-gr. doses night and morning, and this has resulted in a tremendous improvement in his condition, both physically and mentally. The improvement is still continued.

Prognosis.

Of the 113 patients who have entered this hospital, 15 have been discharged as recovered, 7 as greatly improved, and 4 as not improved; 7 have been transferred to other hospitals, and there have been 15 deaths. There are still 65 under treatment.

Of these it can be confidently asserted that only two are likely to be able to earn a livelihood in the near future, and then only in

favorable circumstances as regards constancy of employment, etc. They are of the constitutionally inferior (mental defective) type. The remaining mental defectives have in the majority of cases reached their pre-war level, but even so it is better for the community that they should remain in an institution.

In the case of the two manic-depressive patients remaining, recovery is hoped for in view of the general prognosis of this type of insanity; but considered as individuals, they do not lend much support to this expectation.

Of all the remaining cases (61 in number) the most that can be hoped for (and that in comparatively few) is an arrest of the disease at a stage of more or less advanced dementia.

Summary and Conclusions.

This paper analyses 113 "service" cases of the more chronic type, of whom 67 were in this hospital at the time of writing. Its purpose is to examine more particularly their etiology symptomatology and prognosis, with a view to augmenting the slender volume of collected data on this subject.

The existing literature is first summarized, and various points noted. The confusion and indefiniteness in diagnostic terminology in these papers is deprecated; and a plea is recorded for a uniform system of diagnostic classification. Most of the papers mentioned emphasize the inefficiency of the recruitment examination as far as the mental status of the recruit is concerned, and the uselessness and positive danger of passing mental defectives and obviously potential psychopaths into the army. Further, it is shown that the proportions of the various disease types among service patients has altered since the war-period, and that dementia præcox cases constitute, with mental defectives, by far the greater proportion of cases still under care.

The etiological factors are divided into those existing before the war, and those associated with service. Of the former, insane heredity, psychopathic predisposition (in the sense of the personality traits investigated by Hoch,[7] Meyer,[8] and others), previous mental illness, constitutional inferiority (*i. e.*, mental or moral deficiency), and excessive alcoholism, together accounted for 99 per cent of cases where full data were available. These factors, however, are found to be combined in many cases with physical

inferiority, either of a gross or of a minor character, or with evidences of ductless gland anomalies—such as abnormalities in size and consistence of the testes, in the distribution of hair, etc. Thirty-eight dementia præcox cases were compared with 29 miscellaneous ones, and abnormalities in texture of hair, skin and nails were noted to be more frequent in the former group. Testicular abnormalities were not more common in the præcox cases than in the others; but the series is too small for definite conclusions.

The etiological factors associated with the war included service, traumata, and infections. The average length of service of those who only served at home was ten months; while the average length of service of those who served also abroad was 2.2 years. Only 14 cases, or 8 per cent, showed no factor predisposing or exciting other than service, and it is probable that more accurate records would have much reduced this figure. Only 3 of the 17 wound cases showed no factor other than wounds.

A comparison of toxic-infective factors with the resulting psychosis shows that varied toxic-infective factors yield a comparatively small number of disease pictures, and these much more commonly are well-defined psychoses than the simple infective- exhaustive type.

Table H shows the distribution and interaction of the various causative factors.

An examination of the symptomatology shows that no new type of mental disturbance has been produced by the war, but that certain psychoses (viz. dementia præcox) which in civil life are usually chronically progressive, appeared in an acute recoverable form. A very large proportion, being more than half of the cases now resident in hospital, are of the dementia præcox kind, and of these most are of the paranoid variety. This latter observation has suggested to some that the preponderance of the paranoid type may be due to war conditions, but comparison with civil cases of dementia præcox shows a similar preponderance in them. A detailed analysis of the mental status of the dementia præcox cases revealed in nearly all of them a considerable, and sometimes profound, degree of dementia. The prognostic inference is obvious. The inefficiency and lack of endurance of the constitutionally inferior (mental defective) group is demonstrated. On the other

hand, nearly half of the general paralytics had an average length of service practically equal to that of our whole series. Of the remainder, some at least must have presented signs of the disease when passed into the army.

Finally, it is evident that the majority of the cases under consideration would eventually have entered mental hospitals even without the superaddition of war-strain; and that of those remaining under care, none are likely to reach a normal standard of mental health, and nearly all will have to reside permanently in an institution.

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KIDNEY MALFORMATIONS IN THE MENTALLY DISORDERED WITH REPORT OF A CASE OF CONGENITAL CYSTIC KIDNEYS AND LIVER.*

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I. Introduction.

After examining the literature extant on the malformations of the kidneys one is impressed by the relative infrequency of reports of these conditions from hospitals for the mentally disordered. Congenital malformations in general are conceded to be rather common among the insane and much literature has been produced in consideration of these peculiarities, particularly those of the head region, as the skull, ears, teeth etc; while in this respect some organs of equal importance in the body have been neglected.

Although there are no available comparative statistics to determine the frequency of the occurrence of these defects in the insane, one certainly receives the impression that there is a higher percentage than is found in the autopsy material from general hospitals.

Four thousand four hundred and fifty necropsies have been recorded in the pathologic service represented in this report, which necropsies have been performed by several pathologists; consequently the interests were varied and undoubtedly many cases of congenital malformation escaped description, and perhaps scores of the less prominent defects such as fœtal lobulations, multiple ureters, vessel anomalies, etc., were overlooked or escaped mention; so any attempt to express a percentage would be highly inaccurate.

Of the above necropsies the last 500 have been performed by the writer and from these the majority of the cases reported below have been taken, however, a few of the most interesting were selected from the earlier post mortem records.

In recent years there has developed among psychiatrists an interest in archaic psychology (paleo-psychology), so it would seem that correlative studies of these lower mental levels associated

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with arrests in the physical development of organs (stigmata of degeneration") are in order and would be of considerable value. It is hoped that this paper will stimulate an interest terminating in some investigations of this character.

II. Brief Outlines of Cases of Congenital Malformations of the Kidneys.

1. *Fœtal Lobulated Kidneys.*—On the surfaces of organs showing this rather common type of abnormality there are rudimentary fissures from 7 to 20 in number marking the boundaries of renculi producing permanent lobulation.

The two left kidneys in Fig. 1 were taken from negro males with an arrested mental development, being classed as low grade imbeciles. These individuals were efficient laborers under direction and lived to the age of 32 and 38 years, finally dying from influenzal pneumonia.

These relics of the fœtal condition, which usually disappears soon after birth, have persisted as permanent lobulations with fissures extending deeply into the cortex and are here plainly seen representing an arrest in development at some stage of fusion of the kidney components.

Both kidneys in each subject showed this arrest but no other congenital abnormalities were seen in the other organs of the body.

2. *Multiple Ureters.*—Abnormalities in the kidney vessels and in the ureters are among the most common developmental peculiarities seen. In Fig. 2 we have illustrated specimens of multiple ureters. Kidney *A* was taken from a colored female 63 years of age with senile dementia. Two ureters are seen coming from the widened pelvis. These ureters joined before reaching the bladder, while the opposite side was normal.

Kidney *B* was taken from a case of alcoholic paranoia in a colored male, age 42, dying from lobar pneumonia. There were three distinct ureters growing from the pelvis, however, they probably joined before reaching the bladder as there was but one opening into this structure on the corresponding side. The tremendous obesity of the body and the inexperience of a technician lost the point of fusion of these structures.

3. *Pelvic Kidneys.*—This condition occurred in a white male, age 36, with dementia præcox, and as may be seen in Fig. 3 the

right kidney is fairly normal in shape but hangs low in the abdomen and the renal artery branches near the aorta. The left kidney was supplied by an artery which came from the anterior aspect of the aorta below the inferior mesenteric. The pelvis of this kidney was large, distorted and faced anteriorly.

4. *Solitary Kidney.*—This specimen was obtained from a white male, age 46—with dementia præcox, dying from chronic ulcerative pulmonary tuberculosis. The two kidneys were congenitally completely fused along the mid line, retaining two blood supplies and two ureters with corresponding pelves, which faced anteriorly. (Fig. 4.)

The renal arteries are seen to be unequal in size (the right being much smaller than the left) and branch from the aorta near the bifurcation. These arteries branch and enter the kidney laterally and posteriorly.

5. *Horseshoe Kidney.*—This excellent specimen was removed from a white man, age 63, who had been at the hospital for a few years classed under the diagnosis of chronic melancholia with organic disease of the brain. He died suddenly from heart failure, being found dead in bed in the morning. On the previous day he was up and about the ward apparently in his usual bodily health and had not recently complained of illness.

The post mortem examination disclosed cardiac decompensation with muscular and valvular changes.

The brain weighed 1500 grams and there was some shrinkage of the convolutions of the frontal region and the tissue was soft and œdematous, however, no vascular disease and no gross lesions were found in the interior of the brain.

Kidneys.—This was a large horseshoe kidney, the organs being united at their lower ends by a thick layer of renal tissue (Fig. 5). The hyla faced forward and each had its own ureter which was normal and entered the bladder as usual. The arteries came off the aorta a little lower than usual excepting one large branch which was distributed to the left of the organ coming off about 2 cm. below the cœliac axis.

The left adrenal was normal in size and position but no trace of the right could be found. The veins were large and branched greatly before entering the kidneys. No other congenital abnormalities were found with the exception of a short pouched Meckle's diverticulum about 5 feet from the ileo-cecal valve.

6. *Horseshoe Kidney.*—This patient an Austrian male, age 27, was in the hospital five years before death. Since admission to the hospital he had exhibited catatonic stupor, muteness, waxy flexibility and muscular tension, at times it being necessary to forcibly feed him. He attempted suicide by cutting his throat. In this act he opened the trachea but missed the carotid vessels. The wound became infected and left a fistulous opening in the trachea. During a four-year period he remained totally indifferent to his surroundings. Physical and neurological examinations were always negative. This patient developed influenza associated with broncho-pneumonia and died.

The brain weighed 1500 grams and was wide through the lateral diameter, the cisterns being particularly deep. The specimen was free from lesions throughout.

The kidneys were combined in a horseshoe formation (Fig. 6), the greatest width being 18 cm., the left being considerably larger and its pelvic portions dilated; the ureter passing up on the left side. At the lower pole of the left portion the ureter was almost completely occluded by an impacted calculus 1 cm. in diameter, the ureter being large below the calculus, it being evident that it was difficult for the urine to pass it. This ureter was formed by several large independent channels relatively widely separated in the elongated kidney pelvis, the lowest branch entering the kidney substance near the lower pole, the highest branch near the upper pole with distributions to the several embryonic segments of the organ. The right ureter was much larger than the left and the branches from which it originated were distributed like those of the left but were much smaller in size. The renal arteries were all very small in size and were given off as usual from the aorta. They branched from the aorta 4 cm. above the bifurcation, their course being upward and outward in an acute angle. Lower down in the organ at a point about 2 cm. above the isthmus the renal veins especially the left were of unusually large size.

In this instance was seen an arrested development in the kidneys associated with regression psychosis in the subject with undoubtedly a large amount of fantastic thought " fossils " being produced in the mental symptoms. It is in such cases as these that one would desire extensive analytical studies on the mental construction.

7. *Aplastic Kidney.*—This kidney (Fig. 7) was removed from a negress, age 42, who died from cerebral hemorrhage secondary to syphilitic vascular alterations. Patient's history throughout showed that she was of an organic psychosis constitution. The organ was small, very firm, and showed traces of a cortex. There was some peripelvic fat and a ureter of small size was in the normal position. The kidney vessels, both veins and arteries were much smaller than the average, the renal artery being very small but branched from the aorta in its normal position. The other kidney was normal developmentally.

Microscopical examination showed that there was no vestige of kidney tissue remaining in the sections taken, however, there were many areas of structure which appeared to be remnants of tubules, but which did not contain lining cells or, at the most, presented an occasional flattened linear cell. These areas were divided by heavy bands of connective tissue in which there were numerous congested capillaries and large more or less completely obliterated vessels. There were many areas of amyloid deposit to the extent that in several places the tissue superficially resembled a brightly stained thyroid gland. No glomeruli were seen, and in general the tissues were almost replaced by interstitial structures. Much round cell infiltration was seen in patches.

One sees in this specimen an original aplastic change which, however, is also accompanied by fibrosis of some of the structures which had formerly apparently attempted to grow.

8. *Single Kidney.*—This specimen (Fig. 8) was removed from a white male, age 41, occupation soldier, who came to the hospital with a diagnosis of acute mania with terminal dementia and morphinism. He was admitted to the hospital in May, 1902, and was very noisy and restless at the time. He was also unable to stay in one position but for a few moments, and he was said to be addicted to morphine, taking from 3 to 5 grains daily for years. His mania came on suddenly and his attack terminated after a few weeks with mild dementia succeeding. The greater part of his body was covered by scars, the result of abscesses due to the hypodermic needle. He had periods of being disturbed and destructive, destroying clothes and food. He was restless and untidy, swore a great deal and annoyed the other patients. There was no evidence of renal disease, but he developed a cough with signs of bronchiectasis, which later developed into signs of consolidation of the lower

lobes of both lungs so that a physical diagnosis was made of septic bronchitis due to a gangrenous focus in the right lung.

The post mortem examination revealed a brain weighing 1470 grams, showing slight atrophy of the convolutions. The physical diagnosis given before death was verified by the lung findings.

Kidneys.—The right kidney was at first thought to be absent, but dissection showed a small remnant of the organ near the usual position. This remnant had a long pouch attached which terminated in a ureter, the pouch being composed of branches of ureter amid connective tissue productions. The left kidney was very large weighing about as much as two normal organs. It was in the usual position, had a normal ureter, but two arteries from the aorta, and a suprarenal capsule. On the right side there was a suprarenal body in about the usual position and of the normal size, but as may be seen by Fig. 8 it was of abnormal shape.

9. *Single Kidney.*—The subject bearing this abnormality was a white male, age 62, who came to the hospital with a diagnosis of chronic recurrent mania and lived only one year after admission. He had had no previous attacks but he claimed to have used alcohol to excess. When admitted to the hospital he was in a state of maniacal excitement and continued so until December, 1901, when he became exhausted and weakened from constant excitement. He had delusions of granduer, was untidy, and was very destructive. He finally became exhausted and weakened from excitement, and had an attack of heart failure which under appropriate treatment was corrected temporarily so that the patient improved for a time and gained in weight but still continued in an excited state. For a month previous to death he had gradually been losing ground, becoming emaciated and weak, his condition being augmented by the outbreak of an old tibial ulcer with involvement of the bone. He soon had another attack of cardiac decompensation and died. The autopsy revealed a brain weighing 1360 grams, which showed no gross lesions.

The left kidney (Fig. 9) weighed 200 grams, was in normal position, but was nearly twice the average size for one of this patient's general physique. The kidney was supplied by two large arteries divided into branches. The renal vein was large, branching into four divisions, and in addition an aberrant vein sprang from the vena cava and joined it at the point of division.

The arteries to the suprarenals were very small and were not preserved in the dissection. The left suprarenal gland was normal in size and position, while the right suprarenal gland was somewhat larger and the shape more rounded than usual.

The right kidney was absent, and nothing representing the organ was discovered.

10. *Single Kidney.*—This specimen was removed from a white man, aged 48. He was a badly deteriorated case of dementia præcox with complete motor aphasia and died from bilateral basilar broncho-pneumonia. He had many interesting neurologic symptoms with which we are not here concerned. The brain showed an advanced sclerotic atrophy of the third frontal convolutions over precisely the same area on both hemispheres. There was also an area of softening along the left superior temporal convolution.

Kidneys.—There was a single kidney on the right side (Fig. 10). This organ was slightly hypertrophied weighing 190 grams with a normal blood supply and ureter.

In the left kidney area there was a small mass of connective tissue and tangled veins, but there was no vestige of a left renal artery branching from the aorta. Both adrenals were present.

11. *Congenital Cystic Kidneys.*—These kidneys were taken from an aged mulatto male with chronic mania associated with imbecility. The duration of his psychosis had been 51 years. During his stay in the hospital his mental condition had undergone practically no change and his physical state was recorded as that of excellent health, having been sick but seldom. In 1900 and again in 1901 the patient had malarial attacks and in 1901 he had a cough with peculiar yellowish expectoration, râles in the apex of the right lung and a mitral murmur. In 1905 he had a mild dyspnoea and severe pains in the precordial area accompanied by nausea. He was chilly and vomited, and two days later he had a similar attack followed by a period of good health for a year, then he was again taken with abdominal pain, nausea, and chills, during which breathing became labored. He developed a temperature of 104 and died with broncho-pneumonia.

There had been no change in his mental condition for years and he was one of the first cases admitted to the Government Hospital for the Insane in 1855, his case number being 53. He had some harmless delusions, thought himself the " King " and was so called

by many people. He gave no trouble but disliked to be interfered with in any way. He always had some light work to perform and ran errands for the kitchen force.

Post mortem examination showed a brain weighing 1240 grams with considerable atrophy in the sylvian regions. There were some vessel anomalies.

Interesting post mortem findings were fibrinous pericarditis, bilateral broncho-pneumonia, left purulent pleurisy and interstitial myocarditis.

The description of the kidneys is as follows: The left kidney weighed 950 grams and contained two large cysts, globular in form, 4 inches in diameter, one at each pole, and another about the middle of the convex surface, globular in shape and 2 inches in diameter, also a number of small cysts about 1 inch in diameter occupied the body of the organ. Length with cysts 10 inches.

Right kidney weighed 460 grams and contained one large cyst in the lower pole 3 inches in diameter and another cyst 2 inches in diameter in the upper pole. A number of small cysts occupied the body of the organ, its length including the cysts was 7 inches. (Fig. 11.)

12. *Congenital Cystic Kidneys.—A* in Fig. 12 represents a section of the right kidney taken from an American male, age 35, who had developed the dementia præcox constitution and who died from influenza. Both kidneys were of this character, being filled with small sized cysts, some of which contained a clear fluid while others were filled with a brown gellatinous substance. The remaining kidney substance was very firm and fibrous.

Microscopic sections taken of tissue between the cysts disclosed a very dense stroma of fibrous tissue containing enormous numbers of fibroblasts and small round cells. The tubules were present in small patches but they were very hyperplastic, composed of thick walls, and lined by cells varying in size and shape from small to large, and from extreme flattening to middle sized columnar varieties many of which were in stages of mitosis. In the dense stroma many small residuals of tubules were noted. In other areas where the stroma was fibrohyaline in nature there were very few hyperplastic tubules, but the greater number were mere residuals of former tubular structures.

The capsules of Bowman were greatly thickened and some glomeruli were entirely obliterated by fibrohyaline tissue, while others were only partially destroyed and still others were composed of small cellular knots with an occasional one enormous in size (compensation) with cells in active proliferation.

All blood vessels were markedly thickened and many showed duplication of the internal elastic membranes.

Kidney *B* (Fig. 12) was the right organ from an Italian male, 45 years old, who died from lobar pneumonia and who had been affected by paranoid dementia præcox for 12 years.

The large solitary cyst was filled with clear fluid. The specimen was preserved unsectioned for museum purposes.

III. Report of Case of Congenital Cystic Kidneys and Liver.

American, male, age 61, bookkeeper, married. Mental disorder: Psychosis associated with tabes dorsalis. Duration of psychosis: 3 years. Pathologic diagnosis: Acute uremic toxemia.

Family History.—Patient's father died of heart failure at 70. Mother died of tuberculosis. This was all that could be gathered from the family history.

Personal History.—The patient began school at 5 or 6 years and went until 22 years of age. Then he studied law for three years with one firm and became a state senator for one term and after that was for seven years in the state commerce. He had always used alcohol and at times to excess.

Present Illness.—Was admitted to this hospital at the age of 59 and gave a history of having had tabes dorsalis during the 5 previous years. About one year ago he had spells of excitement, and refused food, became very profane, incoherent, disoriented, his answers to questions being irrelevant, noisy and without cause. He said that "seven weeks ago everything stopped." Upon admission he was confined to his bed, appeared feeble, was unable to remember his name or age and did not know his address. He now gave a history of having contracted syphilis 16 years ago.

He had a speech impairment which interfered markedly with conversation and the information obtained from him was very unreliable. The right pupil was considerably larger than the left and both were very sluggish in reaction to light. There was also a considerable tremor of the lips. The patient remained in bed for a long time occasionally being up in a wheel chair. He was fairly quiet and orderly, but was easily confused. His lower limbs became paralyzed but at times he was able to stand up by the help of grasping some object to keep his balance.

In 1921 he complained of pain in the abdomen and a physical examination showed a mass (which had been mentioned in physical history notes several times before) in the right part of the abdomen. This did not seem to have enlarged since it was last palpated but was diagnosed as a floating kidney

or a benign tumor. An operation was refused. In October, 1921, he had a rise in temperature, rapid pulse, and respiration, and a urine analysis showed the presence of albumen. He became rapidly worse and soon died with symptoms of urinary suppression. The blood and spinal fluid serology were both strongly positive, cells were 16, protein strongly positive, and the colloidal gold curve was in the low syphilitic zone.

Necropsy.—Only partial post mortem examination was allowed so the chest and cranial cavities were not opened. The inspection of the body showed a middle aged man with no deformity of the skeleton, but on palpation of the right half of the abdomen opposite and slightly above the umbilicus there was an area about 10 cm. in diameter under which a mass was felt about the size of a grapefruit, movable, spheroid and firm.

Section of the abdomen showed considerable internal pressure and the abdominal viscera were displaced. The stomach was pushed far to the left and sharply angular at the pyloric portion, but there were no obstructions.

The liver weighed 2650 grams and was dragged far to the right and backwards by two large cysts (Fig. 13) one being pediculated and the other deeply imbedded in the substance of the organ. Longitudinal section through the substance and the large appended cyst disclosed 11 cysts in the liver substance varying from ½ cm. to 5 cm. in diameter and filled with a fluid containing much fat and golden colored, glistening granules. The walls of the large cysts were thin but the inner surfaces were encrusted with a silvery appearing substance of degeneration, a mass of which was attached to one cyst wall, measuring 5 cm. in diameter. Here the wall was much thickened and densely fibrous. The pedicle of this cyst was composed of liver tissue and was very vascular, the liver substance in general showing a moderate sclerosis and some fatty changes. The ligaments of the organ were thickened and there were adhesions to the surrounding organs. The large pediculated cyst was accompanied by many other small cysts in the ligaments and the outer portion of this cyst was studded with many small daughter cysts. All of these structures contained clear golden fluid, and the walls were so thin that the opposite wall could be seen by inspection through the mass of fluid.

Spleen.—Normal.

Adrenals.—Appeared somewhat exhausted.

Right kidney weighed 630 grams and was composed of dense cystic formations, presenting on its anterior surface 112 cysts of various sizes, (Fig. 14) some containing a clear yellowish fluid, others a solid gelatinous white substance and still others containing a semisolid, brownish gelatinous substance. The vascular connections and the ureters appeared normal but there was apparently no pelvis to the kidney and not even a vestige of functioning renal substance was noted. Section of this kidney disclosed innumerable cysts varying from a barely visible size up to 7 cm. in diameter. (Fig. 14,-*B.*) After section, the pelvis of this kidney was fairly easily seen and the wide ramifications of its structures lost themselves among the cysts.

The walls of the pelvis were granular, thickened and pouch-like. Very little kidney tissue was seen between the cysts and that did not appear to be definitely normal architectural elements. In places a resemblance of pyramids with radiating tubules could be seen. There was apparently more interstitial tissue in this kidney than in the left.

The left kidney weighed 1030 grams. The ureters and blood vessels extended into the mass with no visible outlines of the pelvis. (Fig. 15.) The cysts in this organ were less in number, but those present were much larger than in the right kidney, however, they varied from a pin head size to 7 cm. in diameter containing the three types of substance described above. On section the pelvis of this kidney was not easily defined (Fig. 14, *A*), but one papilla was noted out of polarity near the surface. The cysts were thin walled, large, and only in small patches was there visible solid kidney structure. The cysts in both of these kidneys were in appearance like those of the liver so that a diagnosis was made of congenital cystic construction of liver and kidneys.

MICROSCOPIC EXAMINATION.

Kidneys.

1. *Sections from the Large Thin-Walled Cysts.*—These thin walls were composed of dense fibrous tissue showing but few nuclei, however, the structure was well vascularized by numerous thin vessels. The lining was composed of a single layer of heavily stained cells bearing large nuclei. Some of these cells were columnar in type, others were round and widely spaced, while still others were flattened from pressure.

In places the cyst walls were reduced to dense fibrohyaline tissue showing absence of lining cells and containing extremely few cells which were narrow fibroblasts in linear formations. Here the nutrient blood vessels were scarce and presented thickened walls.

2. *Section from the Substance Between the Cysts.*—This substance was extremely vascular and the tubules were of various sizes, the greater number of them presenting hyperplasia with extremely thin walls (Fig. 17) and sprout formations of epithelium. Patches of widely dilated tubules alternated with areas of dense tissue formations in which the glomeruli and tubules were either poorly preserved or completely fibrous. (Fig. 18.)

Most of the lining cells of the tubules were in stages of acute albuminous degeneration. Between these tubules the connective tissue elements were greatly increased and were filled with fibroblasts and small round cells, and occasionally glomeruli in various stages of productive change from a slight cellular increase to complete sclerosis. The remains of former functioning convoluted tubules were quite numerous, and many of the small tubules showed hyperplasia of the epithelial cells with budding projections into the lumen.

There were apparently transitional stages from the dilated thin-walled tubules to the large-sized type of cyst, which covered several microscopic fields. Some of these cysts contained an eosin stained colloid substance

(Fig. 19) while others usually the smaller ones showed intracystic fibrous projections of the walls, covered by cuboidal or columnar epithelium. (Fig. 20.)

Most of the large vessels showed pronounced arteriosclerosis.

Liver.

1. *Sections from the Walls of the Large Cysts.*—The connective tissue walls of these cysts were much thicker than those in the kidney and they were vascularized by thickened vessels, many of which exhibited arteriosclerotic changes. The inner surface of the cysts was very irregular and characterized by numerous villous projections (Fig. 21). The lining was composed of irregular layers of closely packed columnar epithelial cells the nuclei of which were finely granular and brightly stained. In places the epithelial cells had worn away or become detached from the basement membrane, while in other areas there were narrow filiform projections of tissue covered with epithelial "buds."

The sub-epithelial tissues were well vascularized and were filled with mononuclear leukocytes most of which were plasma cells and small lymphocytes. (Fig. 21.)

2. *Sections from Liver Substance.*—The liver substance showed a large amount of patchy fibrous replacement which was without definite relation to the lobules. The hepatic cells were reduced to about half the usual number and the remaining ones were small, very granular and frequently heavily stained with large, dark nuclei. Immediately beneath the capsule of the organ there was a zone of very dense liver substance containing much blood pigment accumulation. (Fig. 22.) The portal canals showed a tendency to enlargement of the bile capillaries which were to be seen in all stages of dilatation giving one the impression that they were originally the progenitors of the large cysts seen in the liver substance and of the enormous ones pediculated to its surface. The arteries and veins of the portal canals appeared normal in development and beside the dilated bile ducts there were usually some normal ones. The lining of these dilated capillaries was usually composed of columnar epithelial cells which were preserved although an occasional cyst was seen without an epithelial lining (Fig. 22) probably in these instances the cells had been destroyed by pressure. In some areas several dilated cystic bile capillaries could be seen separated by narrow strands of fibrous tissue (Fig. 23).

IV. Remarks and Conclusions.

1. Such congenital abnormalities and arrests in development as lobulated kidneys, multiple ureters and vessel peculiarities are common findings at post mortem examination and while I am not aware of positive statistical evidence to sustain the assumption, it is my impression that these conditions are more frequently found among the lower races of mankind, *i. e.*, negroes, etc., than among the

higher races and also more often among the insane than the mentally normal. I am also of the opinion that this assumption holds true for kidney abnormalities in general.

2. According to most statistics the single fused kidney is found once in 8000 autopsies and horseshoe kidneys have been said by some to occur once in 1600 autopsies, but Morris [1] stated them to be as frequent as one in 1000, while Thompson [2] found them to occur as often as one to 300 in surgical cases. Entire absence or extreme atrophy of one kidney is supposed to occur once in 4000 cases, but in our experience in necropsies on the mentally disordered this condition has been found five times in 4500 cases; three cases of which have been mentioned in this publication.

3. Large solitary cysts of the kidneys are very rare, they are usually about the size of an orange but one cyst weighing 16 lbs. has been described. These solitary cysts are more frequent in women than in men occurring usually after 30 years of age, they are unilateral being more often found in the right than in the left kidney, are usually situated at one pole, and rarely do they occupy the center.

When they are bilateral it is a sign of polycystic kidneys and they must not be confused with these, with nephritic cysts, or arteriosclerotic cysts. McConnell [3] found only 63 reported cases in the literature. Simon [4] in 1906 discovered 52 reported cases and Kretschner [5] (1920) mentioned 48 additional ones thus making in all about 100 reported cases.

Among 2610 autopsies in Middlesex Hospital, London, Morris found five cases of this abnormality, while among the last 500 autopsies of the author's experience two cases have been discovered, one in which the solitary cyst occupied the central surface (mentioned in this article) while in the other instance the cyst was situated at the lower pole of the right kidney.

4. Congenital polycystic kidneys in fœtuses have been known to attain such dimensions as to seriously interfere with the birth of the child, and again specimens of unusually small size have been described. In the case of an infant two months old described by Smith [6] the kidneys together weighed only 7 grams and they were associated with an unusually large number of congenital abnormalities of the genito urinary system as well as of some of the other organs of the body.

5. There are several theories offered to account for the development of polycystic kidneys. The common ones are:

(a) The inflammatory theory (Virchow). He believed that the condition was due to a marked fœtal interstitial nephritis about the pillars of the kidney, with later retention cyst formations.

(b) Non-inflammatory theory: Held by those who consider a primary constriction of the tubules well up near the origin, results in polycystic productions.

(c) Neoplastic theory: This theory is adopted by many French authors who describe the condition as adenocystoma, being simply a proliferation of tissue taking the form of cysts.

(d) Developmental or embryonic theories: Rindfleish thought it to be due to non-union of the cortical tubules with those of the medulla.

Ranvier considered it a developmental abnormality in which cysts were formed instead of normal tissue.

Probably the most plausible theory is that of Berners. Viz., the tubules arriving from the Wolffian duct in the embryo fail to unite with the corresponding glomeruli, thus an excess in either glomeruli or tubules might result in cyst formations in the supernumerary structures.

6. Congenital cystic formations occur in the liver in about 18 per cent of polycystic kidney cases [7] and as in these organs the cysts varying from pin head size to several centimeters in diameter push aside and replace the parenchymatous tissue.

The condition apparently originates in congenital malformation of some of the bile capillaries and doubtless the variations in size and differences in structure are due to differencies in the supporting quality of the surrounding tissues or to the amount and rapidity of accumulation of the fluid content.

7. The majority of cases of polycystic organs succumb at an early age to secondary diseases, but occasionally as in our case they live to advanced years. They are undoubtedly always in danger of uremic developments since the functioning kidney tissue is impaired developmentally, by pressure and also by secondary irritative and sclerotic changes.

8. By those who prefer to consider the behavior of the human organism from the standpoint of the individual as a whole some interesting studies might be carried out, particularly when the

diagnosis of congenital abnormalities or arrests in development of such fundamental organs as the kidneys and liver can be determined a sufficient length of time before death to allow a thorough analytic survey of the individual's mental and physical functions.

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FIG. 1.—Fœtal lobulated kidneys.

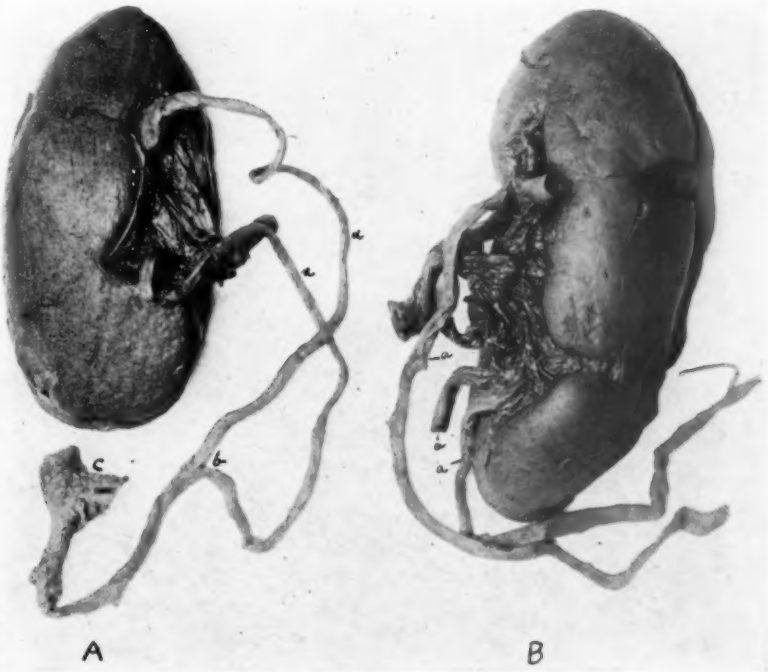

FIG. 2.—Multiple ureters.

A. Left kidney showing double ureter (*a-a*), *b*, point of fusion; *c*, portion of bladder.
B. Right kidney showing three ureters (*a*, *a*, *a*).

FIG. 3.—Pelvic kidneys showing anomalies in vessels and distortion of the left kidney.

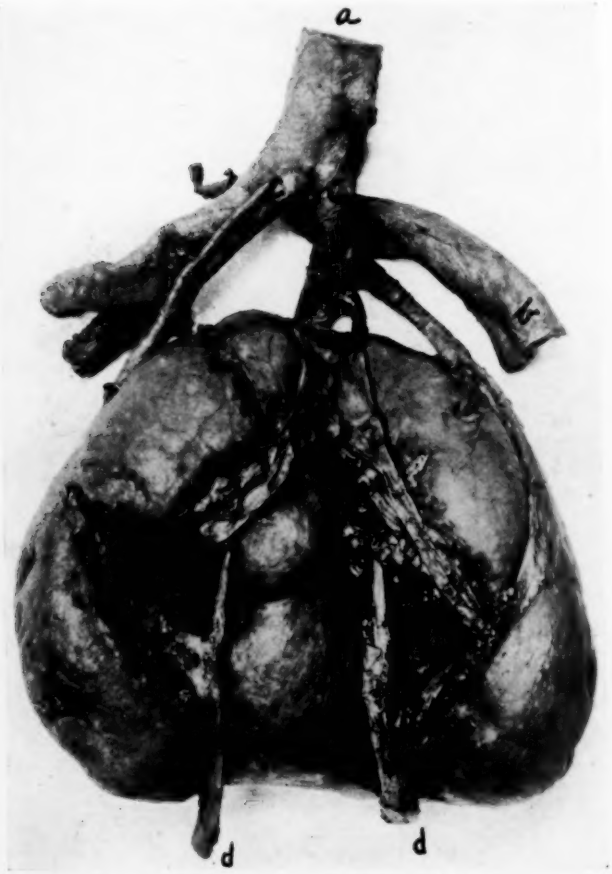

FIG. 4.—Solitary or completely fused kidney.

a, aorta; *b*, *b*, iliacs; *c*, *c*, renal arteries branching and entering the substance laterally and posteriorly; *d*, *d*, ureters.

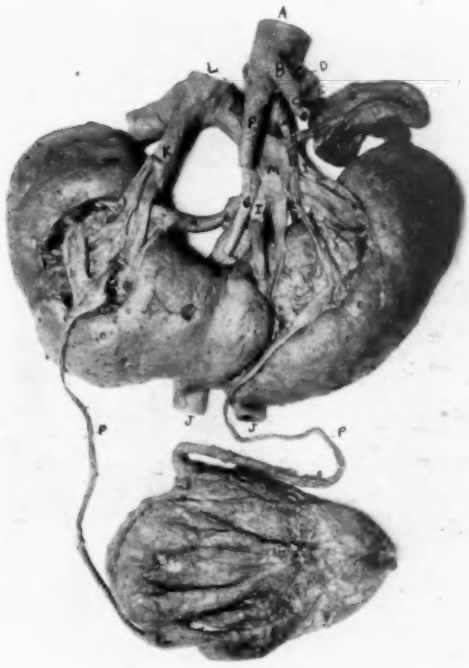

FIG. 5.—Horseshoe kidney and bladder.

A, aorta; *B*, cœliac axis; *C*, hepatic artery; *D*, gastric artery; *E*, splenic artery; *F*, superior mesenteric artery; *G*, inferior mesenteric artery; *H*, right renal artery; *I*, *I*, *I*, left renal arteries; *J*, *J*, common iliac arteries; *K*, right renal vein; *L*, vena cava; *M*, left renal vein; *N*, suprarenal vein *O*, suprarenal gland; *P*, *P*, ureters.

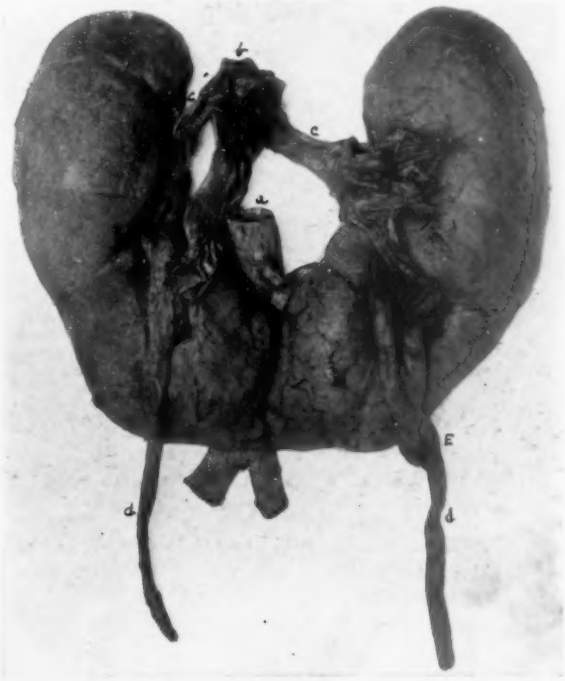

FIG. 6.—Horseshoe kidney.

a, aorta; *b*, vena cava; *c*, *c*, renal veins; *d*, *d*, ureters; *e*, site of calculus.

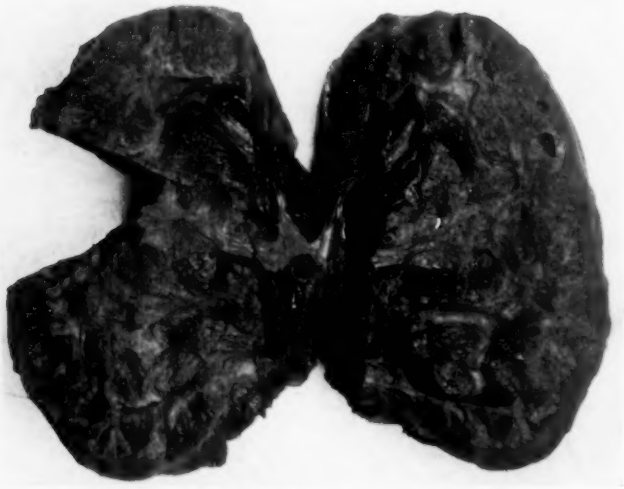

FIG. 7.—Aplastic kidney.—Growth arrested at an early age.

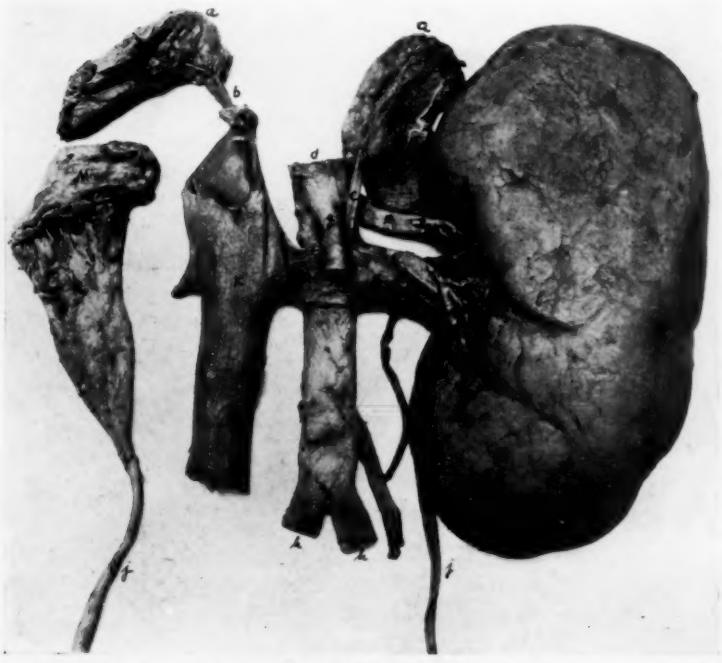

FIG. 8.—Hypoplasia of the right kidney and hypertrophy of the left.

a, *a*, suprarenal glands; *b*, right suprarenal vein; *c*, left suprarenal vein; *d*, aorta; *e*, *e*, left renal arteries; *f*, left renal vein; *g*, superior mesenteric artery; *h*, *h*, common iliac arteries; *i*, inferior mesenteric artery; *j*, *j*, ureters; *k*, vena cava; *l*, pouch attached to kidney remnant; *m*, remnant of kidney structure.

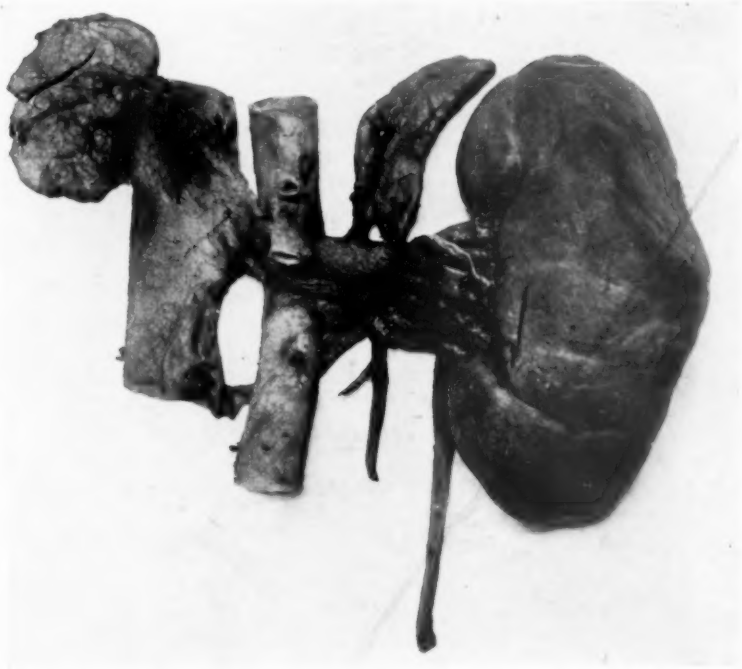

FIG. 9.—Single kidney hypertrophied to twice the dimensions of the average.

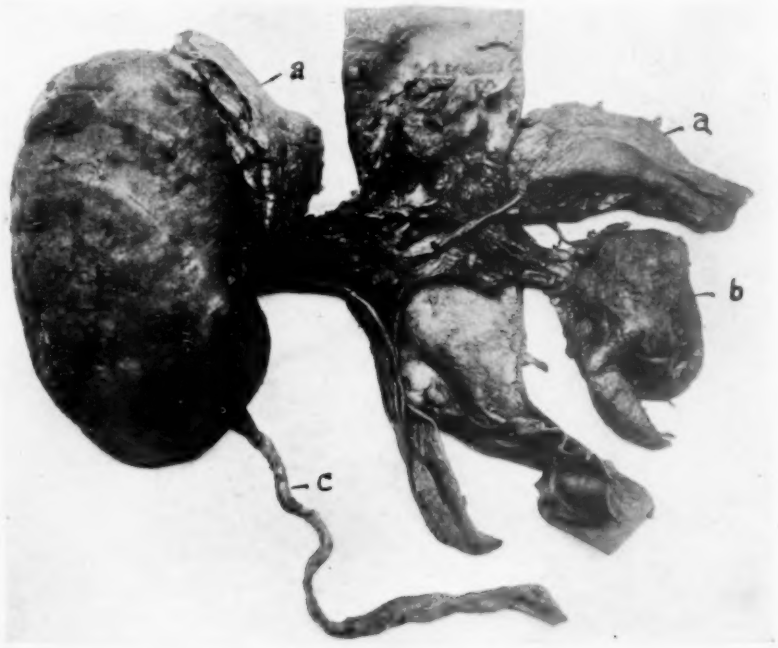

FIG. 10.—Single kidney.

a, *a*, adrenal glands; *b*, mass of connection tissue in left kidney area; *c*, ureter.

FIG. 11.—Congenital cystic kidneys.
A, left kidney; *B*, right kidney.

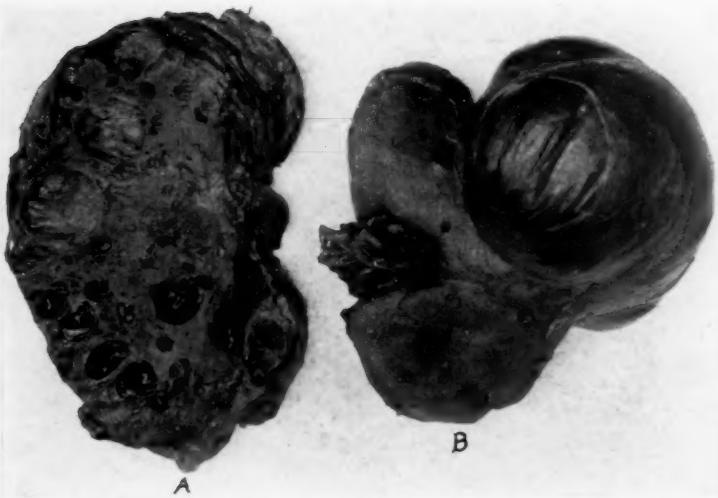

FIG. 12.—Congenital cystic kidneys.
A, polycystic right kidney; *B*, solitary cyst of kidney.

FIG. 13.—Polycystic liver with large appended cyst.

FIG. 14.—Anterior surface of right polycystic kidney showing multiple cysts of various sizes.

FIG. 16.—Sections through the centers of the polycystic kidneys. *A*, left kidney; *B*, right kidney, showing pelvis.

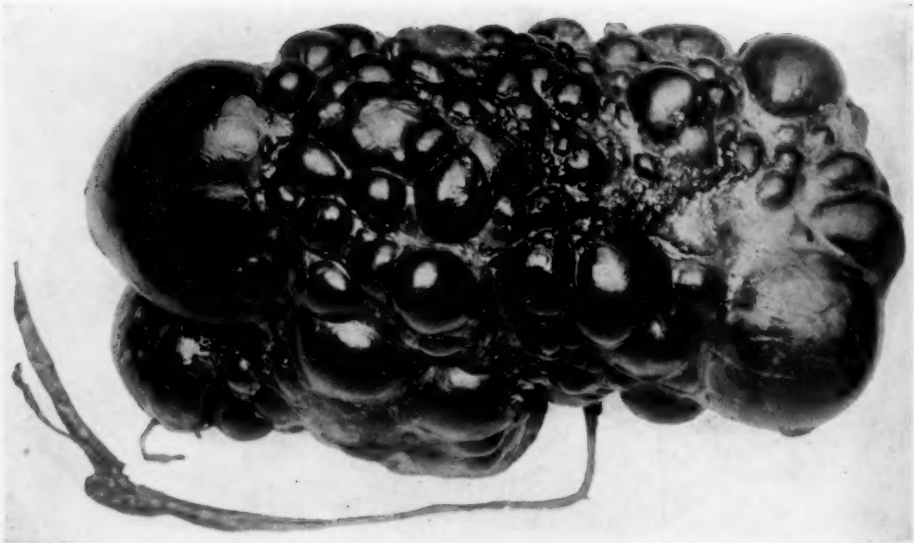

FIG. 17.—Photomicrograph (low power) of kidney, showing hyperplastic tubules and sclerotic glomeruli.

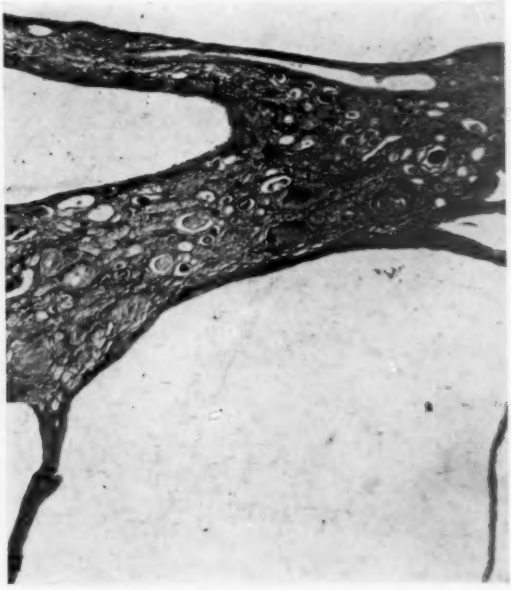

FIG. 18.—Photomicrograph (low power) of strip of non-functioning kidney tissue separating several cysts.

FIG. 16.—Sections through the centers of the polycystic kidneys. *A*, left kidney; *B*, right kidney, showing pelvis.

FIG. 19.—Photomicrograph (low power) of one of the smaller kidney cysts containing dense colloid substance.

FIG. 20.—Photomicrograph (high power) of strip of kidney tissue between the cysts, showing papillomatous projection covered by columnar epithelium.

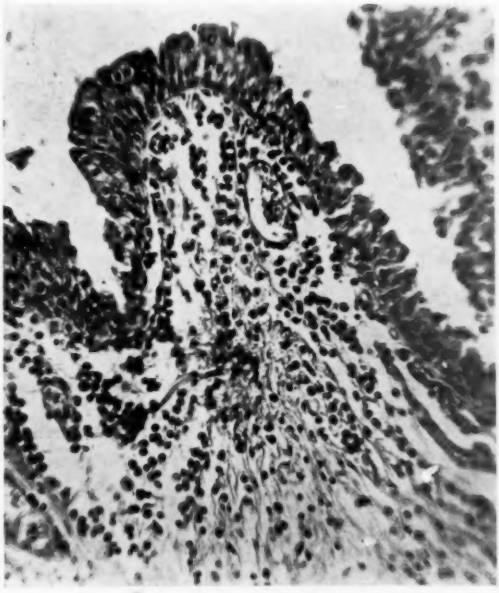

FIG. 21.—Photomicrograph (high power) of wall of liver cyst showing projections covered by layers of columnar epithelial cells. Numerous plasma cells and lymphocytes in the subepithelial tissues.

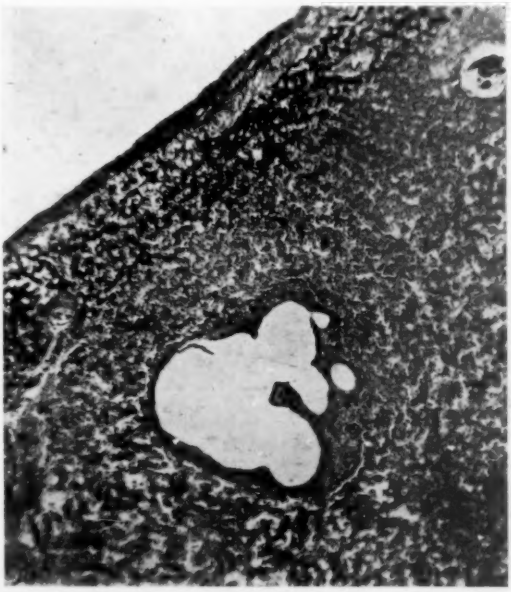

FIG. 22.—Photomicrograph (low power) of liver substance showing blood pigments beneath the capsule, compressed hepatic cells and a small cyst produced by dilatation of a bile duct.

FIG. 23.—Photomicrograph (low power) of liver showing several cystic bile capillaries.

HEMIPLEGIAS WITHOUT VISIBLE BRAIN LESIONS IN THE PNEUMONIAS OF THE INSANE.

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After varying amounts of service in hospitals for mental disease and defect, we get an idea that our special interests represent an overwhelming interlocking with unrecognized mental disease in the general population and, as our visits to hospitals and formal psychiatric society meetings increase, we have additional security for our unexpressed conviction that almost every one is queer or has symptoms which we recognize as indicative of mental disease. When we consider the use of the state funds in the care of the insane, about one-fifth, and for education about one-eighth, of the state's budget, we feel we have tangible proof of our belief.

In our own minute subdivisions of the eugenically unfit, mental disease and defect, we approach our problem of hospital care and treatment in a sobered and yet determined spirit. I suggest attention to what we could all make contributions, the difficulties encountered in making diagnoses of physical diseases in our mental cases. We all understand the reasons; non-coöperation of the patients, lack of registration of subjective or objective symptoms, scarcity of trained nurses, intermittent laboratory aid, delay in reports, multiplicity of duties, fatigue which comes from working with the insane in indenting with their histories, delusions, etc., the short working days, the atypical cases. There is scant wonder that the checking up at the autopsy is not always attended by confidence. What the eugenists' outlook on relative fitness and unfitness is, corresponds fairly well with the pathologists' view of clinical cases as judged from the post-mortem experiences.

Since 1907 when the writer entered the service of the Massachusetts State Hospitals, she has been continually employed in making post-mortem examinations on the insane, and together with E. E. Southard and D. A. Thom [1] gave a brief analysis of the first thousand autopsies done under a peripatetic system for the state hospitals. In this 1000 I find that *80 per cent died of diseases above the diaphragm.* We realize, of course, that more vital centers *are* above the diaphragm, that the brain and heart are

indispensable to the moving of the human machinery, and that many of our cases die of general paralysis and pneumonias: it is more evident that they do when an analysis of 1000 autopsied cases *done by general hospitals and medical examiners revealed 64 per cent dying of diseases above the diaphragm.* The influence of obstetrics, the puerperium and abdominal surgery is shown in this lowered per cent of deaths above the diaphragm.

In the mentally diseased, the commonest error of importance made in the whole service was the frequency with which chest lesions were overlooked. Two hundred twenty-two of the 1000 died of the pneumonias; *28 died of cerebral hemorrhage.* The *same number* of spontaneous cerebral hemorrhages was found in the 1000 autopsies done by the general hospital pathologists and medical examiners (truth ever being stranger than fiction).

In looking over the 16,000 death certificates necessary to secure the autopsied cases in general hospitals, the frequency of cerebral hemorrhage as the assigned cause of death was noted. A report[1] of an insurance company lists the type of diseases that concern them most and shows cerebral hemorrhage as cause of death in 5.8 per cent.

TABLE I.

All causes of death	Per cent of total 100.0
Typhoid fever	.9
Influenza and pneumonia	18.0
Influenza	6.7
Pneumonia—all forms	11.3
Tuberculosis—all forms	14.3
Tuberculosis of the lungs	13.3
Cancer—all forms	8.0
Cerebral hemorrhage; apoplexy	5.8
Organic diseases of the heart	11.0
Bright's disease	7.0
Puerperal state	2.1
Total external causes	9.6
Suicides	1.2
Homicides	.9
Accidents	7.2
Accidental drowning	.8
Traumatism by falling	.9
Railroad accidents	.9
Automobile accidents	1.3
Other accidents	3.4
All other causes of death	23.3

This balances probably the clinical thought of our state hospital group of physicians. It is starred in the International List of the causes of death, which means that no inquiry is made by the board of health on that return. When a sudden illness of a patient is reported by the nurse, the suddenness seems more explainable if one thinks of vascular disease. Usually the report reaches the physician that the patient has had a "spell" or a "slight twitching," or "looks sick" or "doesn't speak" or "won't eat" or "looks queer," and a cursory examination shows the patient inert with blowing respirations and more or less unconsciousness. If the temperature is normal or below, and an arm falls limp or "dead," especially if the patient is over 60, the diagnosis of cerebral hemorrhage is made with more or less certainty. Then the physician's attention is distracted by the notification of relatives and possibly the priest, and other reports and duties peculiar to state hospital practice.

I have had the experience so frequently of being asked to autopsy "the body of John Brown who had a 'shock' four days ago." I have never ceased to feel dismay at possibly having sectioned the wrong body at not finding the hemorrhage. These hemiplegias are usually found to be due to pneumonias of virulent type or virulent enough to cause death because of the lagging and anemic right heart due to the decreasing nourishment of it from lack of anastomosis of the right coronary artery (Gross[3]). This lagging of the right heart lessens blood supply to the lungs and makes them easy prey to terminal infection, the nidus being present in the upper respiratory tract.

What, if anything, should we do in these cases? Table II shows what diseases may be most frequently confused with pneumonia and what items should be compared when a patient presents a picture of sudden unconsciousness or partial hemiplegia. This table is a careful culling of points from Osler's[4] text-book, and represents the differential points as far as may be.

1. *Hemiplegia.*—First determine if it is present. By this is meant actual repeated trials to determine voluntary movements of the extremity. The immediate examination may yield nothing, but within six hours fairly definite signs may be recognized, such as inequality in closing of the eyes and difference in depth of naso-labial folds. When the patient opens his mouth with teeth clinched and presents inequality of exposure of teeth, shows a greater dif-

TABLE II.

	Hemiplegia (anisolateral muscle tonus).	Pulse.	Deviation eyeballs.	Fundi.	Blood pressure.	Leucocytes.	Urine.	Spinal fluid.	Kidney function.	Blood culture.
Cerebral hemorrhage	+	50-60	+	Disc change Edema-vascular change	++	+ 12000 to 15000	Albumin or sugar (probably epinephrin type)	± Blood	No change	0
Pneumonia	+	100-120	0	0	No change	++ 15000+	Retention chlorides in the body (more than other febrile disease) absent also in dilatation of stomach)	Cells +	No change	±
Uremia	+	100-120	±	Alb. retinitis	?+	0	Albumin ++	Urea +	Less than 10 per cent	0

ference than usual between hand grips as measured by dynamometer, also slightly brisker radial and ulnar wrist jerks, or tricipital and bicipital elbow jerks on the affected side, inequality of knee jerks with a tendency to exaggeration upon the paretic side with corresponding extensor plantar reflex and increased Achilles jerk or even ankle clonus (French [5]), then presence of hemiplegia is determined.

2. *Pulse.*—With increasing intracranial pressure the pulse accordingly slows and a rate of 50-60 should put one on guard unless a previously slow pulse in this patient has been recorded. This sign is perhaps infrequently looked for; the usual question to the nurse is about temperature. Perhaps our dramatic sense is over developed and more significance is attached to the temperature than to the pulse, in this, as in other conditions.

3. *Deviation of Eyeballs.*—This sign should be looked for even though it may not be entirely diagnostic of cerebral hemorrhage since it may or may not occur in coma of uremia, or in brain tumor, or meningitis. It is never, however, found in pneumonia unless hemorrhage has also taken place. The deviation is toward the lesion (left in right hemiplegias), and in early cases before spasms or convulsions or rigidity have set in.

4. *Fundus.*—An early and a six-hour observation of the fundus of the eye should not be omitted. In cerebral hemorrhage extensive enough to cause hemiplegia, an edema of the disc might be seen (Barkan [6] reports having seen it appear in 6 hours) and there would also probably be seen vascular changes—silver wire appearance of vessels, etc. In pneumonia there would be no change of an edematous nature, and in uremia there would be an albuminuric retinitis. No one is more aware of the difficulties of bedside examination of eye grounds than the writer, and repeated attempts often have to be made and finally given up on account of contracted pupils, wandering eyeballs, etc., while the stooping necessary over the bed, the uncertainty of an electric battery, and the disagreeable contact with the patient sometimes overcomes the interest.

5. *Blood Pressure.*—The blood pressure presents no technical problem due to uncoöperativeness of the patient. The pressure is probably undisturbed in pneumonia, as it may be in uremia but is always indicative of the lesion in cerebral hemorrhage.

6. The leucocyte counts are hard to get figures on in cerebral hemorrhage but 12-15,000 are given, while in pneumonia unless

of mild bronchial type they are from 15,000-30,000 and no increase is noted in uremia.

7. *Urine.*—Specimens may be also difficult to obtain in any of the three conditions, but albumin may be found in all, the greatest amount in uremia; and sugar may also be found in cerebral hemorrhage if the lesion be near the medulla, but in distinguishing pneumonia, the *retention of the chlorides* more than in any other febrile disease points toward pneumonia, if one can rule out a dilated stomach.

8. *Spinal Fluid.*—After counting the pulse, it seems to the writer that the next simple thing to do would be to make a spinal puncture. Blood may or may not be present in cerebral hemorrhage depending on whether the hemorrhage has reached a surface (ventricular or cortical)—but if present it is diagnostic. It would not at first be present in pneumonia, and not at all in uremia. In this latter disease it is the presence of *urea* that is the valuable finding.

9. The *kidney function* test will depend on age, unless uremia is present, then it will be under 10 per cent.

10. The *blood culture* may be negative in all, but if present proves the infectious disease.

If cerebral hemorrhage is so infrequent in autopsy findings, why is it? In the brains of the insane hospital population, it is surely a fact that there is a great deal of arteriosclerosis. There is, moreover, a demonstrably high per cent of abnormal kidneys[13] and of damaged hearts. Some factor must equalize these potentials. The equalizing factor must be hospital routine which is not calculated to raise blood pressure nor increase the load on the heart or the kidneys. The patients are carefully watched and graded as to exercise and work; competition is removed, the home complications are left behind them and the bed time and rising time, baths, food, and visits are, one might say, standardized, and not pressure-raising.

Few of our patients have hemorrhage during sleep, a few of the bed cases develop it, and one is surprised at the zone of safety these people enjoy. To be sure there are hemiplegic cases but they have usually come in the hospital after their hemiplegias are developed.

It is unusual for patients in state hospitals to have a high blood pressure: by high pressure I mean over 200 mg. Possibly the

type of blood pressure apparatus is not perfect—they vary with the institution, and with the familiarity to the procedure by the user—but of recorded pressures, Rappleye [7] found of the population of Foxboro State Hospital in 1918, containing then about 350 patients, that 20 per cent had a higher than normal blood pressure, taking 110-135 mg. as a systolic normal, 80-90 mg. a diastolic normal. Gibson [8] at Middletown, Conn., in a study of 163 patients found but 32 per cent of the women and 22 per cent of the men had systolic pressures 180 or over. He thought the number of years of a sheltered existence was a factor in the lowered pressure, since those in hospitals 20 or more years showed lowered readings at 65 years or so than those who had come in later in their lives and had their blood pressures registered at 65 years. The senile dementias appeared to have consistently, as a group, high blood pressures.

For cerebral symptoms at onset of any infectious disease, the real reason must remain remote from explanation, but Holmes [9] points to the increase of the viscosity of the blood in persons with low arterial tension and sclerotic cerebral vessels in whom transient hemiplegias may result from this combination. He also quotes Russell [10] who thinks the blood channels are locally closed by means of their own muscular coats, enough to completely arrest the flow of blood to the part, and Inman [11] who thinks the circulation is slowed because of lowered pressure itself.

Withington [12] reports a case of a young male adult whose Wassermann reaction was negative and who suddenly became hemiplegic in the development of a pneumonia. This hemiplegia cleared in three days, and when the patient recovered no trace of muscular weakness remained.

The following is typical of the autopsied cases seen frequently since 1907 suggesting a post-cerebral injury of a few days' duration:

K. K., Boston 22121, female, aged 66, was in the hospital five months with a diagnosis of arteriosclerosis. This was made because of the history of having high blood pressure for a year or more, being exceedingly difficult to get along with, emotional and abusive, with an irregular heart and systolic murmur. The Wassermann was negative and there was visible arteriosclerosis, failing memory and effusiveness.

One day, September 27, 1920, while sitting in the day hall, she fell forward as though in a faint. The nurse got to her in time to prevent her from falling on the floor, but she was confused, unsteady on her feet, and her mouth was drawn to the left and twitching somewhat. The hand grasps were weak. These symptoms appeared to be vascular and probably

were; she was brighter in the morning and was up and dressed in the afternoon, although it was noted her gait was unsteady when she walked.

Two days after the initial attack she seemed much more confused and very unsteady and her temperature rose to 101°, and following this her speech became affected and she answered questions slowly and with an effort.

October 7. Patient continues to have an increased temperature which rises to 103° at night and 100° in the morning. Respirations normal, pulse somewhat rapid. Lungs clear. There is a loud systolic murmur heard over all the precordium. She is able to swallow. Mentally she seems dull.

October 8. Pulse 90, temperature 102, respirations 24. Right hand and arm spastic and right side of face droops. Right leg does not respond to stimulation.

October 9. The physical signs have increased, temperature 103, pulse 104, respiration 40. Patient is vomiting to-day. There is a small sacral bedsore. Patient failed and died at 11 p. m.

These notes are typical of numbers of cases autopsied with the clinical picture perhaps even more clearly understood by the clinician than what is written down. The *sudden onset,* the confusion, the change of gait, and a spasticity are more associative than real symptoms. The very conscientious clinician, Dr. Florence Abbot, thought this patient had died of a cerebral hemorrhage and made the effort to see the brain herself under very trying conditions of physical illness and unsuitable weather, so unconvinced was she that there would be demonstrable brain hemorrhage.

Autopsy performed 34 hours post-mortem showed few acute lesions; bruising of legs, bronchopneumonia, also a slightly injected spot in the left supra-marginal gyrus were all the evidences of acute changes.

The chronic lesions were coronary sclerosis, cardiac hypertrophy and endocarditis, pleuritis, nephritis: gall stones, fibroids of uterus and atrophic ovaries completed the visceral changes. The meningeal thickenings and brain atrophy and lessened brain weight, 1140 grams, show the changes in the skull cavity.

The detailed description of the lungs and brain follow:

Left lung, 510 grams. Apex clear. Free edges not remarkable. Dependent portion of upper and lower lobe show considerable black pigment over surface and it is somewhat firm to touch. A section floats. There are grey, peribronchial indurations about the bronchi in the lower lobe. The major bronchi contain blackened purulent exudate.

Right lung, 520 grams. Pleura thickened over surface. Lobes not separable. Lowest lobe firm to touch, does not crepitate. On section the lung is evenly red but no peribronchial area of induration is seen. The bronchi covered by exudate to slighter degree than in the other lung. Peribronchial lymph nodes not enlarged.

Head.—Hair grey, mixed with white. Scalp medium in thickness. Calvarium thin. The dura mater thickened. *Base of brain.* First nerves are plump; the second are slightly edematous; third pair of nerves are caught in slightly thickened pia mater; the others not notable. The cerebellum is plump, is crowded to the medulla and nearly surrounds it.

Right occipital tip notched. There is a slighter degree of atrophy present in right temporal lobe than in left. The orbital portion of frontal poles is somewhat angular.

Superior Surface of Brain.—Hemispheres approximately equal and very pointed at frontal and occipital poles. Pia mater slightly thickened especially in sulci and injected throughout especially in left hemisphere. Atrophy is distinct in the anterior poles including the motor regions. The brain is firm with the exception of the left supra-marginal gyrus which is somewhat more prominent, more injected and a trifle softer than the other portions of the brain.

Frontal Sections.—(1) anterior to the chiasm shows nothing of note except angularity of convolutions; second section which includes the frontal portion of the lateral ventricles, is also negative. The third section includes temporal tips and shows the slightly dilated ventricles, but otherwise no lesion. The 4th, through the pontine region, including cornu ammonis, is negative, except the ventricles which are dilated. Next (5th section) through the supra-marginal gyrus, shows the injection limited to the pia mater, but no cortical change recognized at this time. Section through cerebellum negative. Section through pons shows the vessels injected. Vessels at base of brain only slightly thickened with no calcification.

Brain weight, 1140 grams. Tigge's formula 8 x 161 = 1288, loss 148 grams.

Microscopically the softened area (? artefact on removal) of the brain, found by palpation, shows nothing of note except hyperemia of vessels in the white matter and in the pia. This finding can be duplicated in the corresponding area on the other side and in various surrounding areas. There is nothing of importance to see in the pons.

The small cerebral vessels are thickened in their walls, and this last illness could have primarily been due to a coronary sclerosis, or to altered viscosity of the blood, or to low blood pressure in the cerebral arteries, or to narrowing of the lumen of them perhaps, or toxicity—from a developing bronchopneumonia.

CONCLUSIONS.

I. Autopsies serve the purpose in a state hospital system of emphasizing the problem of physical disease.

II. Physical disease is more difficult to recognize in the mentally diseased and defective because of non-coöperation of patients and the major interest of psychiatrists in mental disease.

III. If autopsies in state hospitals show 80 per cent of the deaths to be due to diseases above the diaphragm, against 64 per cent in general hospitals, a fairly high per cent of the non-fatal illnesses are possibly chest lesions in state hospitals.

IV. Cerebral hemorrhage has been demonstrated to be accountable for a low per cent of the deaths—2.8 per cent in 1000 autopsied cases in state hospitals.

V. Comparison of 1000 autopsies done by medical examiners or done in general hospitals shows the same number of spontaneous cerebral hemorrhages, namely, 2.8 per cent.

VI. Lobar pneumonia and central virulent bronchopneumonia may simulate cerebral hemorrhage in onset and symptoms.

VII. Pneumonia may be differentiated from cerebral hemorrhage most simply by pulse rate (slow in cerebral hemorrhage) and by examination of the spinal fluid which will usually be bloody in brain hemorrhage.

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FIGS. 1 AND 2.—Frontal sections through the brain to show the paucity of pathological findings to account for the symptoms which suggested cerebral vascular lesion.

THE PSYCHONEUROSES: THEIR NATURE AND TREATMENT.*

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Untenable Conceptions.

The essential problem of medicine is to find and to apply means to prevent or overcome abnormal physical and mental conditions, or, failing that, to at least ameliorate the handicap and suffering occasioned by such conditions. In order, however, to prevent, overcome or ameliorate any condition the very first necessity is to understand that condition. So it is with regard to the problem of *curing* the psychoneuroses, we must first understand the constituent elements of this problem before we can hope to solve it. I know of no other branch of medicine in which, in the past at any rate, we have so neglected this axiom and been so very easily satisfied with purely symptomatic treatment—rest, placebos, anything indeed to "satisfy the patient" for the time being and if possible get rid of him. I, therefore, do not hesitate in considering the subject of treatment of the psychoneuroses to invite your attention first to what may be the nature of these maladies; secondly, to their mode of genesis, and, lastly, to their treatment.

The older theories and conceptions in regard to the psychoneuroses are almost without exception based on the hypothesis that an organic, physical, structural lesion *must* be the basis of any disorder of function. No such lesion or condition ever having been discovered, these older theories assume an "as yet undiscovered" or an undiscoverable lesion, to explain the symptoms. Just as these theories were reasoned backward from the symptoms, so was the treatment they indicated wherever it fitted the theory, simply directed at the symptoms. The prime favorite among these hypotheses was that these maladies are due to a pathological weakness, a sort of inexplicable exhaustibility of the cortical cells, and consequently the favorite treatment consisted in *rest,* and the

* Read before the Hartford Medical Society at Hartford, Conn., June 5, 1922.

favorite medication was—phosphorus: of course, for the "exhausted" neurons being normally full of phosphorus, when exhausted must need phosphorus, ergo—feed them phosphorus. Q. E. D. This medication reminds one of the ancient theory and practise of "feeding" the "unhealthy" granulations of ulcer with beef juice! Fatigue was, and still is, the commonest symptom; the naive theory of exhaustion was evolved therefrom and consequently rest was the logical panacea. The results were disappointing, very few if any patients got really well, but the theory was expanded to meet this meagreness of result, by assuming that the weakness was *chronic,* and neurasthenia and the rest of its psychoneurotic brethren got the bad and undeserved reputation of being rather *permanent* curses.

In the course of years it was noted, however, that occasionally patients did seem to get well and this fact led to a rather vague realization that the "rest cure" under certain exceptional physicians succeeded, whereas under others it did not. The personality of the physician seemed to have either a distinctly helpful, or adverse effect and this difference in effect was finally recognized as the result of "suggestion."

Also formal direct suggestion as an instrument of cure, developed (quite independently of and antedating our "rest cures"), to a high degree of effectiveness by Bernheim, Charcot and others in France, had a distinct vogue over here and proved of no little help. However, in spite of the evident efficacy or direct suggestion in removing symptoms, especially in hysteria, the old pathological hypotheses and the old faith in rest persisted and to a large extent persist to this day.

Other theories have had more or less short lived and limited popularity, but have been finally relegated to the discard. I refer to the theories such as that the basis of neurasthenia is onanism, the opposite theory that it is due to continence. The theories that the psychoneuroses are caused by "auto-intoxication," whatever that may be (with or without visceral ptosis), by eye strain from unbalanced extrinsic muscles, and even by unbalance of the body due to shortened achilles tendons, belong to this class.

All of these older theories have met refutation in the hard school of practical experience. The simple fact that treatment based on them has failed with great regularity, has finally brought

them under suspicion and they are, it is to be hoped, well on their way to their permanent pit.

Furthermore, that these theories do not "hold water" is not a mere deduction from literature on my part, but is the result of observation and experience. The conclusions forcing one to discard completely the old physiological theories find ample proof in the following facts appearing in the histories of some 800 of my cases of primary psychoneuroses (all border line and organic cases being excluded). In only 14 per cent of these cases was there a history of organic mental difficulty in the antecedents, and this 14 per cent includes not only insanity, but alcohol and drug addictions; 4 per cent gave a history of eccentricity or genius in antecedents; 1 per cent epilepsy in antecedents, and only in 36 per cent was there a history of either rheumatism, gout, T. B., arteriosclerosis, cancer or Bright's. (A record from the point of view of heredity which compares favorably with that of any group of general medical and surgical cases.) A previous history of possible physical causes in the patients themselves reveals infections and operations in only 31.9 per cent, accidents 3.85 per cent and abuse of alcohol and drugs in only 3.47 per cent.

Whereas, evident mal-adaptation and so-called mental "shocks," anxiety, romantic misadventure, etc., shows up in causal relation in over 50 per cent of the cases while in the remaining 11 per cent no specific exciting cause could be found.

Neither from the point of view of possible heredity, nor from that of the physical facts in the patients' own lives, is one justified in assuming an inherited or acquired physical lesion or derangement. Also from the point of view of the results of treatment, the old theories are disappointing. 51.69 per cent of my cases had received previous physical and medical treatment such as medication, massage, electricity, operation, etc., with the same result—at best some slight temporary relief, but *no cure*. 43 per cent had taken one or more definite rest cures at home or at sanataria with the same unsatisfactory results. If one adds the 42.7 per cent of cases which had received previously "medical" treatment which in practically all cases involved more or less prolonged rest, we have 85 per cent who had previously received some sort of treatment involving principally rest, with the discouraging result of *no cure*. Assuredly if exhaustion had been the cause of their troubles, rest followed by abstinence from effort

should have cured these cases. It did not. Furthermore, not one in all of these gave a history of having undergone previous re-educational treatment! And, lastly, re-education with *increased* physical and mental activity finally restored to usefulness the large majority of these same patients.

Thus the old theories certainly have been proved untrue by practical experience, but even without this proof, how could any conception of the psychoneuroses have been accepted as adequate, which completely ignored the one most essential, most interesting and certainly most *interested* element in the problem—namely, the individual patient himself?

Some twelve or more years ago, finding such disharmony among the then current conceptions, and seeing such unsatisfactory results from the then standard treatment, in desperation I deliberately discarded them all, and determined to study the individual, first, foremost and all the time in each case, and let what theory would grow as a result of such study. It was not long before certain conclusions were forced upon me, which subsequent experience has served only to confirm.

In the first place, the typical psychoneurotic was evidently an individual possessing a physical apparatus well above the average in resistance to disease and intrinsically sound. Histories peculiarly free from serious previous illnesses and thorough physical examinations made this clear. Secondly, no typical environmental cause for his difficulty, common to all or even a majority of cases could be found. Last, most important, and most helpful of all, it became increasingly clear that all psychoneurotics in sharp contrast to their physical and mental *adequacy* (which distinguishes them from the so-called organic cases, such as the major psychoses), were markedly and typically *inefficient*. The outstanding characteristic or manifestation of this personal inefficiency, was *imperfect adjustment to environment*.

In short, the conception which further years of experience have confirmed and clarified, is that the problem of the psychoneuroses is the problem of the mal-adaptation of intrinsically normal individuals to what in the vast majority of cases, proves to be an environment also well within normal range.[1]

[1] As an unimportant historical digression I may say that this general conception of the psychoneuroses was formulated quite definitely by me

Not only has subsequent experience of my own confirmed the truth of this concept, but the conclusions of others, especially those who have dealt with the war neuroses in the last few years, have brought both confirmation and fresh light.

The matter of individual adaptation is indeed both the key to understanding the psychoneuroses and constitutes the essential and constant guide to treatment. I am sure, therefore, it will not seem a digression if we undertake a survey of this very human problem of adaptation as a foundation for our further more specific study of the psychoneuroses.

Basis of Present Interpretation.

The factors of this equation of human adaptation are: First, the material to be adapted, that is the individuality; second, the conditions to which it must be adjusted, namely, the environment; and, third, the process of adjusting one to the other—in short, adaptation itself.

Taking these factors in the order named, we have *individuality* as our first puzzle, and in order to bring it to terms, we must define exactly what we mean by *individuality*. For the sake of clearness, I suggest that we limit the meaning of this term far short of the vague universality which it, in common with such terms as personality, temperament, character, intuition, instinct and indeed any other term relating to the mind or spirit of man, have acquired in common parlance and in popular, religious, "psychic" and romantic literature. As the mathematician deliberately and cooly say, let "A" equal such and such, so let us say let *individuality* equal the sum total of the native and acquired predispositions of the individual, and let it include also temperament and character, which latter terms shall be further defined presently. Let us name the sum total of instincts and other inherent predispositions, per-

and was the basis of my treatment for several years, prior to 1912. In 1912 I began to use a series of short pamphlets, written for my patients as text-book aids to the re-education. The first of the series was written around that conception and was printed in 1912. The first publication, however, of this "inefficiency—Mal-Adjustment" conception was not until the spring of 1916 in a paper read before the Johns Hopkins Medical Society. In that paper the grounds for discarding the old theories were more fully developed than I have thought necessary at this time, for after four years of further medical progress and knowledge mere respectful allusion to their passing would seem sufficient.

sonality. The individuality is then to be considered as a composite made up in the first place of instincts and other inherent predispositions, these being the raw material, so to speak, of personality, and in addition temperament and character which are distinctly qualitative factors modifying this raw material.

What is this primary raw material, instinct? I know of no better nor clearer definition of instinct than that given by McDougall in his book on Social Psychology. On page 29 of the tenth edition, he defines instinct as "an inherited or innate psychophysical disposition which determines its possessor to perceive, and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such action."

Let instinct then mean an hereditary, inherent disposition or tendency to respond in a specific manner to a specific change in environment. We may say further that instincts are the chief outstanding inherent dispositions to action, and that they together with other less specific inherent tendencies both inherited and acquired, constitute the gross adaptive mechanism, the raw material we have called personality.

But let us enquire more closely into the intimate mechanism of this dynamic factor instinct, before considering the other elements making up the total individuality.

A reflex is the simplest form of adaptive mechanism. It consists, roughly speaking, of three parts—afferent, central and efferent, involving the familiar sensory-motor arc, but rising to no higher level in consciousness than the sensations involved in the reaction. Now a reflex may be considered the simple prototype of the instinct. It has to do, however, with adaptation of only a limited part of the body to a change in environment, whereas an instinct involves the response of the whole, as will presently appear.

Like a reflex, an instinct has roughly three parts, sensory, perceptive and motor. The first or afferent part involves the sensory nervous mechanism; the central has to do with perception and the affective part of emotion and involves the forebrain; while the third or efferent part involves the motor nerves, including the sympathetic, and has to do with the visceral and somatic part of

emotion, and mobilizes the body for the appropriate specific action—instinctive adaptation.

Each instinct has its own particular emotion which is the very keystone of its dynamic arc. For instance, the instinct of escape has fear as its peculiar emotion, the instinct of pugnacity has anger, and so on.

An instinct may then be said to be a very magnified and compounded reflex involving response to environment, not of a single part of the body, but of the whole animal. The primary emotion which belongs exclusively to its own particular instinct, and can be aroused only as part of that instinct, is that element which we "feel" both as a "feeling" and as an impulse to specific action, and which largely through the sympathetic nervous system, but also through the central nervous system, re-arranges the grandular activities, puts the musculature in readiness, and appropriately energizes the cardio-respiratory and other "systems," thus mobilizing the body for immediate and specific action.

How many and what are the primary instincts composing personality? That is a question which cannot be too definitely answered in the present state of our knowledge. But for the practical purposes of the physician, the instinctive predispositions can be roughly divided into those which apply particularly to self, and those, on the other hand, which have to do with race or herd. Thus we have self-preservation with its two oppositely acting factors: (1) Escape motivated by its proper emotion, *fear;* (2) pugnacity, with its emotion, *anger*. And, on the other hand, we have certain instinctive dispositions which are distinctly for the herd such as the gregarious impulse, the constructive and acquisitive instincts—which are of the herd, whereas the mating and parental instincts obviously have to do with the preservation of the race or species.

Among the less specific instinct-like tendencies, McDougall adds to this list, sympathy, suggestibility; contra-suggestibility; imitation; play and the emulative impulse.

Gross behavior of the individual animal may be said to be determined primarily by the action and interaction of the instincts just enumerated, in response to change in the environment.

Where several instincts are simultaneously aroused by a complex change of environment, the resultant response must manifestly be

the action of either an instinct over-whelmingly stronger than the rest, or it must be the resultant of a conflict between instincts more evenly matched. Animal behavior is thus practically determined by the sum total of its instincts—its personality. Certain changes may be acquired by training, so that an hereditary stimulus no longer motivates its appropriate instinct. Experience in the simplest form, training, as in domestic animals, may thus modify instinctive action—but, on the whole, the personality of the animal remains about the same—timid, pugnacious or gregarious as the case may be, and he continues to behave accordingly.

By means of instinct, personality then adapts itself to environment rather reflexly, rather wonderfully to be sure, but still also rather stupidly. Personality cannot think ahead or backward, or indeed at all, and so is dependent for action on immediate circumstance.

But man, as Homo Sapiens, the wise animal, has the gift of intelligence. He can use more skillfully the instinctive mechanism, the personality, which he possesses in common with the lower animals. He has, thus, a greater power of adaptation than they, for he can employ the instinctive impulses for purposes beyond the moment. He can, therefore, make his instincts more effective by intelligent control. If his instinct of pugnacity is aroused he may deliberately postpone its expression until the advantages are overwhelmingly on his side. This possibility involves another element, the power of choice, that executive of the intelligence which is at once the privilege and the greatest responsibility of man.

Temperament is another element upon which man must use his power of choice, his guiding will. By temperament I mean an inherent tendency, as inherent as instinct, but involving the affective side of emotional life, and very likely somewhat determined by the physiological status, acquired or inherited as the case may be. It is a qualifying element difficult to define—but in effect it predisposes the individual to over-respond, to be over-sensitive, or insensitive, as the case may be, to those more or less specifically painful or pleasurable elements in his emotional activity. This pain-pleasure element of emotion is to all of us an important motivating influence, but some of us are more sensitive to it than others. The degree of this sensitiveness is, however, directly amenable to training and power of choice and, therefore, if abnormal can be considered from the therapeutic point of view as

a temporary evil if it be an evil at all. For instance, such sensitiveness may be just sensitiveness, or may be developed into specialized and purposive appreciation. Thus, for example, as an asset or liability as the case may be we may have an excitable, an apathetic, a cheerful or gloomy temperament.

The last element on the personal side of the adaptation problem is character. Again we shall have to give this term an arbitrary limitation in the manner of the mathematicians. Let character stand for the sum total of the effect of choice and intelligence applied according to social, moral and ethical standards upon the reaction of the raw material of the personality and temperament to environment. Thus a "strong character" is one which realizes its ideals and purposes in action, whereas a weak character may have high ideals, but expresses them in action, imperfectly or not at all.

Individuality is then personality, modified in its reaction to environment by temperament and character (*i. e., intelligence*).

As to the factor of environment in this problem of adaptation it includes all the end products of the personality, for it is composed manifestly of countless other individuals as well as the obvious physical elements beneficial and harmful to the individual and to the race. This factor may, therefore, be roughly divided into the physical and social. The physical elements in civilized life can hardly be said to constitute a psychological problem in themselves, except for a very different class of case from that with which we are now concerned. The social elements, however, are those very elements, which are the products of civilization on the one hand, and on the other present the very difficulties which test one's adaptability.

The history of civilization's emergency from savagery, repeats itself in many respects in the evolution of the individual from irresponsible babyhood to citizenship. Child-training, "upbringing" and education, constitute the chief environmental aids towards attaining more skillful, more intelligent and more unified adaptation, guiding and forming the growing individuality from the unintelligent instinctive level, to the intelligent and ethical. It is thus that habitual attitudes are formed and personal moral traditions established. Environmental influences are baneful or beneficial very largely if not exclusively from this point of view.

Of course the social environment may be too easy or too hard. In being too easy, *i. e.*, arranged to adapt itself to the individual demands, it "spoils" the individual, and a grown spoiled child results. It may be too hard, especially too hard, too early, demanding an adaptability that the individual has not attained, thus forcing him to regard the adaptation as impossible, the world as his enemy and throwing him back into an unsocial self-protective (instinctive) attitude.

However, environment rarely if ever furnishes in itself the causative factor in the therapeutic problem of the psychoneuroses, except from the point of view of early influence, training, education and suggestion. But this aspect of the problem has to do only with prevention—not with cure and, therefore, belongs to the realm of mental hygiene, a subject far too wide for the scope of this paper.

To summarize this necessarily short and incomplete survey of the problem of adaptation, we can say that adaptation of the individual to the changes of the ever-changing environment, involves in the first place simple reflex action as far as minor physical changes are concerned; but instinctive reaction modified by intelligence and character are involved when adaptation rises to the dignity of human conduct. In short, when adaptation rises to this dignity the factors of the equation are: on one side individuality, including personality, temperament and character, and on the other changing environment.

Having this rough equation of adaptation in mind, we are now ready for our main subject, namely, the nature of those forms of mal-adaptation called the psychoneuroses.

Psychoneurosis: A Mal-Adaptation.

A most diligent search extending over years and involving the study of the histories of several hundred typical psychoneurotic patients (all borderline and doubtful cases being excluded) has confirmed my conviction, formed over ten years ago, that at best only the immediate exciting cause of a so-called "breakdown" can be found in the environment. Even then the cause almost invariably proves to be non-specific, that is, it is not inherent in the particular nature of the change of environment, but is very distinctly inherent in the fact that such a change, whatever its nature,

demands adaptation from the patient, which adaptation he fails to make. Let us examine the following statistics for evidence of the truth of this theory:

In 800 cases only 26.3 per cent gave a history of drastic changes in social environment preceding the attack, while only 31 per cent had operations or physical illnesses of any severity. As some of these cases had both of these mental and physical elements in their histories, and consequently appear twice in these statistics, it is safe to say that not one-half of the total number gave any evidence in their histories of environmental changes important enough to be considered causal. Furthermore, I wager that at least as high a percentage of illnesses and disappointments would appear in the histories of the vast majority of non-neurotic individuals.

Irrespective of type, *all* cases show an inability to adapt themselves to the common changes (social) of environmental conditions. This inability, however, manifests itself in different ways according to the individuality of the patient, and is an inability which is based not on inadequacy but on inefficiency, due largely to mis-interpretation and lack of the knowledge called "know how."

The source of this inability in some cases lies chiefly in that part of the individuality called temperament; in others an instinct of exaggerated strength; in still others in the elements of character. In short, it is to be found in the influence of reason upon the reaction of personality to its environment. In one case temperamental sensitiveness is the predisposing cause which unfavorably affects this influence; in another it may be an overstrong instinct. The environmental influence paying at most the parts of the immediate exciting cause.

Largely independent of gross environment, the familiar varieties of the psychoneuroses develop, the form in each case being determined almost entirely by the individuality of the patient. One can see evidence in the family history of these cases that the personal qualities responsible for these maladies are, in the majority of cases at least, certainly not of the distinctly inherited *native* sort, for only a comparatively few show histories of similar difficulties in parents or grandparents, whereas not a few prove to have been under the environmental influence of high-strung nervous companions. In case, however, that the contention be brought for-

ward that organic diseases of other types may be responsible for psychoneurotic tendencies in descendents, I wish to point out that in the histories of my cases, the incidents of such diseases in parents and grandparents are certainly no greater than, nor different from, those one finds recorded in the histories of any other clinical group.[3]

There is at least very suggestive evidence that the psychoneurotic tendency is most often an acquired one, in the fact that given the knowledge, the requisite insight, the vast majority of these cases are able to adjust themselves most satisfactorily and permanently, even in those rarer cases where the environment is manifestly and grossly a very difficult and trying one. It is not probable that an organic and, therefore, deeply rooted abnormality could so readily be overcome.

The old classification of the specific varieties of psychoneuroses is still of use for "psychasthenia" and "neurasthenia" are descriptive labels even though they describe only symptoms. The psychasthenic is a psychoneurotic whose symptoms refer to the mental side of life, while the neurasthenic's symptoms refer to his bodily functions. "Hysteria" on the other hand, though it is also descriptive of symptoms only, will outlast the other two labels, for the symptoms it describes arise from a fundamental hyper-suggestibility and a tendency to dissociation, which is in itself a distinct and specific predisposition of certain individuals. One should bear in mind, however, the fact that this old classification is based purely on the superficial basis of difference in the symptoms manifested and that this difference is due to the difference in individuality as outlined above. What then are these differences in individuality which incidentally produce different symptoms, complexes, different forms of maladaptation?

In general, psychoneurotic adaptation shows a tendency to short circuit on the instinctive level. There is a break in the integration of the individuality and instead of responding by an adaptation of the whole, the unity is broken, and the response is

[3] Per cent

A history of a nervous breakdown in one or more antecedents.	12
A history of high-strung or nervous antecedents without breakdown	33
A family history of insanity (including drugs and alcohol)	14
A family history of organic diseases (rheumatism, gout, etc.)	36

Statistics strikingly common to general medical groups.

primarily a mere reaction—a substitute satisfying neither the instinctive impulse nor the moral and spiritual demand. Considering for a moment the individual as a political unity, there is a "split in the Republican Party"—and a poor compromise takes place. Now whether this break manifests itself for example as a neurasthenic or as a psychasthenic syndrome depends upon the individuality of the patient, that is the sum total of his acquired and native dispositions. Thus, his poor substitute adaptations to his environment are those of an intelligent or unintelligent, a cheerful or gloomy, a timid or pugnacious, a selfish or altruistic individual; an individual furthermore with an inherent or acquired tendency to over-value and be over-sensitive to emotions or sensations or both; and a further tendency to react reflexly—instinctively to the environment, thus suffering the more or less constant incoordination of behavior resulting in mal-adaptation.

The specifically characteristic tendencies of the psychoneurotic individuality are roughly as follows:

1. *Over-sensitiveness to emotions* and *sensations* the primary basis being a temperamental predisposition to over-respond to the pleasureable and painful; the secondary basis being poor training and discipline, allowing the predisposition to become habitual in action.

2. *Relative unbalance* of *instincts,* for instance, and most commonly, the basis is a relatively over-active instinct of self-preservation with a consequent prominence of fear and anger; the secondary element being misapprehension of the significance of these emotions and a consequent exaggeration of both the affective and physical elements of emotion. In short it is this instinctive unbalance which makes the general temperamental sensitiveness specific, to fear or anger for example.

3. *Suggestibility* combined with an inherent, probably inherited, tendency to dissociation of function, secondarily accentuated by wrong training, resulting in mal-adaptation of hysterical type.

4. *Character faults* usually a lack of training and discipline with a consequently imperfect connection between ideals and performance, resulting in an egotistic type of mal-adaptation.

5. *Lastly, the environmental* conditions may be so terrifically hard both socially and physically as to defy the normal power of adaptation.

In general the psychoneurotic adaptation shows a more or less extreme tendency to " short circuit " on the lower instinctive level. The individuality does not respond as a whole, but reacts only in part, showing a break in the integration of character in its response to life.

It is to be noted that all of these characteristics are found in the perfectly normal individuality; it is only when they become exaggerated or relatively unbalanced that they constitute psychoneurotic tendencies.

1. To illustrate these generalities more specifically, let me attempt a tentative etiological classification somewhat less general.

(a) Individuals being temperamentally over-sensitive to painful sensations and emotions react to the ordinary ills that flesh is heir to and tend to develop a hypo-chondriacal variety of the neurasthenic syndrome.

(b) The same type of individual will also react to the ordinary emotional conflicts of life by exaggerating their importance, and will habitually mismanage them on the conception that feelings rather than actions should be controlled. The mal-adaptation which usually results in a *psychasthenic* syndrome with emotionalisms.

Etiologically it is obvious that a and b are fundamentally the same though the symptomatology is very different.

2. Individuals usually hypersensitive but also with unbalanced personalities, for instance those possessing relatively over-strong instincts of self-preservation, tend to react to the ordinary difficulties of life whether they be emotional or physical by yielding to these instincts and thus developing a psychasthenic syndrome of the phobic or irritable type as the case may be. The environmental cause, in other words, is in each sub-variety merely the exciting cause, but does not determine the variety of the disorder.

3. If the psychoneurotic individual be also hypersuggestible, his adaptation to life takes on the hysterical character exhibiting protean somatic disturbances such as motor paralyses, disturbed organic functions and pain habits.

4. Character faults (weaknesses) if they occur in individuals possessing any or all of the psychoneurotic elements described in 1, 2, 3, result in mal-adaptation characterized according to the

individuality by automatisms of escape, avoidances, protective illusions of self, and indecision, in some cases accompanied by marked emotionalism.

5. Lastly, there are those rare cases where environmental conditions both mental and physical may be so extraordinarily abnormal and difficult and prolonged as to defeat the power of adaptation, and break the integrity of the most stable individuality. (In my experience this is the rarest type, the simplest, and I have never seen a case in which some form of physical hardship was not present.)

In general, a tendency to over-mobilization of energy, a dead level of intensity of effort, irrespective of need, is the commonest form of inefficiency exhibited by all types.

I must add that most often cases do not fit definitely into any one class, but seem to belong to several. This is to be expected when one realizes that individuality more than any other element determines the type of syndrome, and of what complex and variable factors individuality is composed.

In short, I believe we can recognize five characteristics which in various combination yield different types of psychoneuroses.

1. The temperamentally over-sensitive.
2. The unbalanced personality where one or more of the primary instincts are relatively over-strong, which makes general temperamental sensitiveness specific.
3. The hyper-suggestible yielding hysterical symptoms.
4. Character faults where there is disintegration between the elements of will and judgment and the spiritual elements.
5. What one might call the "*environmental*"—here adaptation suffers. Disintegration at its weakest point through the extraordinary difficulties both physical and mental of the environment.

Rarely, if ever, it must be said, do we come across a clinically pure type, and most often we must be satisfied in labelling the case according to its strongest and most predominant characteristics.

A diagnosis based on etiology in these cases is obviously more helpful as it deals directly with the individualistic peculiarities, which peculiarities it is the aim of therapeutics to re-adjust.

Treatment.

When it comes to treatment, all types are amenable to re-education, obviously their greatest need. The character fault type is perhaps the hardest to reach; the emotional type more difficult than the sensory, even though the latter may have gastro-intestinal and other secondary disorders to a marked degree. In general the simplest is, of course, the easiest, as for instance the war neurosis. Difficulty or ease of treatment, rapidity or slowness of progress, depends more on the individuality of the patient, especially his intelligence, than on anything else.

The treatment should, in the first place, of course, be based on the nature of the disorder, and, secondly, on the personal equation, the individuality of the patient. In short, psychotherapy should be guided by a common-sense analysis of the case involving a study of both the patient and his social environment. This begins with taking a most careful history and making a most thorough physical and neurological examination. I say psychotherapy begins with the history and examination and I say this advisedly, for during this process not only is the all-important relation between physician being established, which may yield antagonism or co-operation according to how it is handled, but this is the time par excellence, when the physician by his attitude, by his manner and by his words, may do good or harm to his patient through suggestion favorable or adverse. One can ask a question, or feel a pulse in a way either to give reasonable confidence or to "scare" the patient "to death."

At the very beginning of the re-educational process confidence in the physician's singleness of purpose and absolute truthfulness is apt to be established—not by argument, but by fact—and hope of recovery and restoration will then grow naturally from belief in his words to conviction.

The object of the treatment must always be held before the patient's mind: Readjustment to full usefulness must be held as the primary goal—not mere immediate comfort. If one is dealing with the headache of resentful disappointment or the indigestion of anger, or the palpitation of fear, the situation should be treated by always leading the patient to a consideration of the condition at fault as more important than the symptoms. Thus symptoms may be made the most helpful object lessons, illustrating and clinching the more theoretical re-education.

One difficulty to be met early in the treatment of most patients is the same thing which constitutes the chief obstacle to the educational crusade of Mental Hygiene—it is *prejudice*. Psychoneurotic disorders are still regarded by most people as either perfectly unnecessary and selfish indulgences or at best pretty discreditable and imaginary states. The truth is otherwise and the patient should be made to feel at the earliest possible moment that his difficulty is not imaginary, that you *know* it is not, that it is absolutely real and lastly absolutely in need of real treatment.

The objective of treatment is really threefold: First, the relief of immediate suffering, if possible; second, re-adjustment mentally, morally and physically to the needs of life; and third, supplying the patient with that specific knowledge of his condition which is called "insight," through which he may avoid future recurrence.

To this end the patient should, in the first place, be removed temporarily from his ordinary home environment to one which is as free from distractions as possible, but at the same time offers opportunities for normal, not invalid life.

The patient's life should be as regular as possible, so that he gets not only the advantage of the momentum of good habit, but gets some helpful discipline in doing things because they are there to be done and not because he does or does not happen to feel like doing them. A régime is the greatest help in divorcing action from feeling. This régime should contain the three main elements of normal life, namely, *work, play,* and *rest,* so that daily practice may be had in applying the markedly different principles which severally belong to work, play and rest, and so that he may have frequent fresh object lessons in energy expenditure to drive home the theory of efficiency.

On the physical side, exercise both general and if indicated also specific corrective exercises, as well as general physical hygiene including proper diet and the taking of sufficient water, are, of course, important elements and should be given very definite and careful attention.

The chief therapeutic agent is, obviously, psychotherapy which as I have already said should start at the very first contact with the patient, and continue throughout the whole course of treatment. Although confidence, encouragement, hope and determination to win out are constant and important aims of the therapy,

the chief agent of cure is re-education, the object of which is, as I have said, readjustment of the patient to his environment. In short, to re-integrate the individuality so that it adapts itself as a whole and does not short circuit on the instinctive, but responds on the ideal and intelligent level. The method of re-education must in the first place deal truthfully though sympathetically with fact. It must not be ambiguous or mysterious. It must discount faith and appeal directly to the critical faculties, and only through them to the moral and spiritual. It must be elastic and itself perfectly adaptable to the differing individualities it encounters. And lastly, the method must always keep in the foreground its object—to give useful, applicable knowledge to the patient from which he shall derive full power of normal adaptation.

When insight is established, and as soon as practice has firmly joined it to daily performance, the next step is to transfer the patient to his environment for what I term his "trial trip." During this trip he should be kept in touch with, helped by advice and encouragement as much as seems needful and then, if it seems wise, given another shorter course of treatment for which recent experiences in his own environment furnish the object lessons. He should be kept track of and helped until his adaptation is satisfactory and has become habitual.

Before leaving the subject, even in this short survey, I must refer even if most briefly to that other most important phase of treatment—Prevention. This belongs rightfully to mental hygiene, as I have said, but mental hygiene concerns us all, not only from the point of view of preventing the development of the psychoneuroses, but also from that of the problem presented by all other mental disorders and diseases. Indeed all that has just now been said about treatment is no more nor less than a description of the technique of teaching mental hygiene to those who most need it. When one realizes that at present in the United States there are *more* hospital beds occupied by diseases and disorders of the central nervous system than by all other diseases combined; and when one holds up this crying need, this tremendous financial and social wastage, to the great possibility of preventing, through the timely application of knowledge, a great majority of all of these diseases and disorders, one cannot fail to get at least a preliminary realization of the practicability of the principles of mental hygiene and the enormous importance of broadcasting its

knowledge. Mental hygiene societies are springing up in many states, and this year what promises to be a nation-wide educational movement of immense importance and value has begun. As citizens as well as physicians we owe this crusade against ignorance and prejudice our best support, and as physicians we should be the very first group to become educated. To those of us particularly interested in the Psychoneuroses mental hygiene holds out the highest hope; for early recognition in childhood of the elements making for nervousness is fully possible and when parents are educated to recognize these elements and adopt the proper methods of training the neurotic liabilities of these children, I believe then future breakdowns will be avoided. This, however, is only *one* of the great educational possibilities of mental hygiene.

Results.

In conclusion I wish to point out that the tentative classification submitted is merely tentative, that the hypothesis it is based upon has developed from experience and lastly that the technique of treatment as outlined is in accord with this hypothesis, and that it seems by practical test to be a sound beginning, pointing the way hopefully to greater success. As suggestive evidence, I submit these statistics from my practise, dealing with the average duration of treatment and the results obtained. In these statistics the term "no improvement" needs no explanation; "improvement" means any distinct dimunition of symptoms coupled with distinct increase in ability to live normally; "much improvement" means full ability to live a normal life and disappearance of at least 50 per cent of symptoms; and "cured" means full ability to live a normal life without reappearance of symptoms, and if any emergencies and difficulties have arisen, ability to meet these in a normal way.

800 CASES

First visits, average duration	3.5 weeks.
Return visits	25.2 per cent.
No return visits	74.8 per cent.

Reports six months and over (average two years) after discharge:

No improvement		1.9 per cent.
Improvement		15.7 per cent.
Much improvement	Fully restored; ability, 82.4 per cent.	49.3 per cent.
Cured		33.1 per cent.

The majority of the failures here recorded under "no improvement" 1.9 per cent and just "improvement" 15.7 per cent were undoubtedly due to the imperfection of the technique, even though a few may have been recognized in the early stages of organic psychoses, mistakenly diagnosed as psychoneuroses. In short, the technique is obviously far from 100 per cent successful, but it is elastic and I believe holds forth rich opportunity for great improvement.

STUDIES ON THE CEREBRO-SPINAL FLUID WITH AN ACETIC ANHYDRIDE-SULPHURIC ACID TEST.

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The acetic anhydride-sulphuric acid test is essentially a modification of Liebermann's test for cholesterol. It was with the idea of finding cholesterol that I first applied it to spinal fluids. A spinal fluid from a case of general paresis was the first to be treated, and gave a reaction characterized by a blue pink, almost lilac color. Next, a spinal fluid from a case of dementia præcox was tried. The color reaction was much different in that I got a transparent yellowish color, which is rather hard to describe accurately. These variations in the test naturally made me desirous of trying it on more cases. I have, therefore, examined various spinal fluids and compared the results with A. A. S. (acetic anhydride-sulphuric) test with those obtained by other tests.

Technic.—Place 1 c. c. of spinal fluid in a Wassermann test tube. Add 0.3 c. c. of acetic anhydride drop by drop. Shake. Add 0.8 c. c. of concentrated sulphuric acid drop by drop. Shake. After about five minutes examine color of fluid against a white background. A blue pink or lilac is positive; the blue tinge only, therefore, is the characteristic reaction. To get an idea of what a positive reaction looks like, it is wise to first try the test on spinal fluid from a case of advanced paresis.

I have been more concerned with the practical application of this test in the diagnosis of syphilitic conditions of the nervous system than with its theoretical explanation, although I have observed a few points about its behavior, and these I will tabulate:

(1) Sulphuric acid alone does not give the test.

(2) Acetic anhydride alone does not give the test.

(3) Heating spinal fluid to boiling will not destroy the substance giving the test. According to the experiments of Weston, it is not, therefore the substance which gives the colloidal gold reaction.

(4) The substance giving the test is thrown down with globulins in the Noguchi test. After centrifugation the supernatant fluid

is negative to the test, but a normal saline emulsion of the sediment is found to be positive.

(5) The test has nothing to do with the excess globulins as it has been negative where there was present much globulin.

(6) The substance does not seem to be cholesterol because no change in color is produced by the addition of sulphuric acid alone, and the other tests are negative. In the light of Weston's careful experiments on the cholesterol contents of spinal fluids, we are clearly not dealing with cholesterol, because he found that the average amount of this compound in cases of epileptic psychosis, dementia præcox, and organic dementia was greater than for cases of paresis, senile dementia, and manic depressive psychosis. In my test, cases of dementia præcox, epilepsy, manic depressive, alcoholism, imbeciles without luetic history and physical signs suggesting syphilis, are negative. Of the cases of senile dementia and psychosis due to arteriosclerosis examined, some were positive. Whether the positives obtained in the latter fluids are due to luetic changes remains to be demonstrated.

In a study of the spinal fluids of 22 cases of paresis at the Connecticut State Hospital, a positive A. A. S. reaction was obtained in each instance. Two cases, however, only gave a slight reaction. Out of four cases diagnosed as paresis and receiving treatment at the Vanderbilt Clinic in New York City, only one gave a strong reaction comparable to our cases in the Connecticut State Hospital, while the other three gave a slightly positive reaction. These cases undoubtedly did not have sufficient mental delapidation to warrant institutional care. It has seemed to me, although the cases have not been thoroughly studied, and were not of sufficient number, that the paretics having a slightly positive reaction, offered a better prognosis as for duration of life, than those whose spinal fluids gave a stronger A. A. S. reaction. (See Table I.)

Two cases of tabo-paresis receiving treatment at the Vanderbilt Clinic, gave in one instance a negative reaction and in the other a slightly positive reaction. (See Table II.)

In cases of tabes receiving treatment at the Vanderbilt Clinic in New York City, I was able to differentiate serologically two groups of cases. In one group comprising six cases, the spinal fluid was negative for the A. A. S. test, and showed a luetic type of gold curve (in general 1123321000). In the other groups, comprising

four cases I obtained a slightly positive reaction for the A. A. S. test and their gold curve was of the paretic type. It would seem, therefore, that the more active and florid the pathological process going on in the central nervous system, the more likely will we obtain a positive A. A. S. test. (See Table III.)

Imbeciles gave predominately a negative A. A. S. reaction. Of fourteen cases studied, three gave a positive A. A. S. test. One had a negative blood Wassermann, but a positive spinal fluid Wassermann and a positive globulin test. The second had a positive blood Wassermann, positive globulin test, and a meningitic type of gold curve with 123 cells. The third had also a positive blood Wassermann. (See Table IV.)

Cases of psychosis due to arteriosclerosis were predominately negative. Of 10 cases studied, three were positive for the A. A. S. reaction. Of these one had a positive blood Wassermann, a positive Noguchi test for globulin and a paretic gold curve. The second case had a positive Noguchi test for globulin and a luetic gold sol curve. The third case in addition to the positive A. A. S. test showed only a positive globulin test, the gold sol reaction being unascertained. (See Table V.)

Cases of senile dementia are predominately negative for the A. A. S. test. Of 13 cases studied three gave a positive A. A. S. reaction, and of these, one had a positive blood and spinal fluid Wassermann, the other a paretic gold curve (Wassermann was not done) and the third showed a positive globulin and a meningitic type of gold surve. (See Table VI.)

Of 24 cases of dementia præcox studied, a positive A. A. S. reaction for the spinal fluid was obtained in two instances. One had a positive blood and spinal fluid Wassermann, the other had a luetic gold curve. As one would expect from the nature of this mental disorder, the spinal fluid will always be negative for the A. A. S. test in uncomplicated cases. (See Table VII.)

Of nine cases of manic depressive psychoses studied, all but one gave a negative A. A. S. test, and this one had in addition a paretic gold sol curve, but a negative blood and spinal fluid Wassermann. (See Table VIII.)

Six cases of psychoses due to alcoholism all showed a negative A. A. S. test—one was doubtful. (See Table IX.)

Epileptics in eight cases studied gave a negative A. A. S. test. (See Table X.)

TABLE I.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUIDS FROM PARETICS.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(N)	(R-J)	(AAS)	(Gold Sol)
I6802	pos.	pos.	278	pos.	pos.	pos.	5555543210
I6813	pos.	pos.	50	pos.	pos.	pos.	5554431000
I6812	pos.	pos.	30	pos.	pos.	pos.	3333321000
I6779	pos.	pos. not counted		pos.	pos.	pos.	5555443210
I6900	pos.	pos.	19	pos.	pos.	pos.	5554320000
I6588	pos.	pos.	77	pos.	pos.	pos.	5555553210
I6440	pos.	pos.	302	pos.	pos.	pos.	5555553211
I6365	pos.	pos.	80	pos.	pos.	pos.	5555543210
I6471	pos.	pos.	34	pos.	pos.	pos.	5541100000
I4675	pos.	pos.	12	pos.	pos.	pos.	5555554310
I5781	pos.	pos.	55	pos.	pos.	pos.	5555554110
I6922	pos.	pos.	6	pos.	pos.	pos.	5555543210
I6978	pos.	pos.	111	pos.	pos.	pos.	5554332000
I6999	pos.	pos.	26	pos.	pos.	pos.	5555553210
I7012	pos.	pos.	44	pos.	pos.	pos.	5555554100
I7033	pos.	pos.	167	pos.	pos.	pos.	5555554210
I7038	n.d.	pos.	31	pos.	pos.	pos.	5555555430
I5624	pos.	pos.	n.d.	pos.	pos.	pos.	5555543211
L.S.	pos.	pos.	5	pos.	pos.	pos.	5555432100
I4996	pos.	pos.	n.d.	s.pos.	s.pos.	pos.	1155520000
S	pos.	pos.	34	sl.pos.	sl.pos.	sl.pos.	0011311000
P	pos.	pos.	24	pos.	pos.	sl.pos.	5554321000
F.S.(V.C.)	4 plus	4 plus	10	3 plus	n.d.	sl.pos.	5555554310
H.F.(V.C.)	2 plus	4 plus	180	4 plus	n.d.	pos.	5555554310
C.C.(V.C.)	neg.	4 plus	3	neg.	n.d.	sl.pos.	5555544310
H.O.(V.C.)	3 plus	4 plus	12	2 plus	n.d.	sl.pos.	5444321000

ABBREVIATIONS

B.W.	represents	—Blood Wassermann.
Sp.F.W.	"	—Spinal fluid Wassermann.
N.	"	—Noguchi test for globulin.
R-J	"	—Ross-Jones test for globulin.
A. A. S.	"	—Acetic anhydride-sulphuric acid test.
Gold sol.	"	—Colloidal gold reaction.
n.d.	"	—not done.
sl. pos.	"	—slightly positive.
s. pos.	"	—strongly positive.
V.C.	"	—spinal fluid from Vanderbilt Clinic, New York City.

TABLE II.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUIDS FROM CASES WITH NEURO-SYPHILIS.

TESTS	B.W.	S.P.W.	CELLS	M	G.S.	AAS	DIAGNOSIS
16781	doubt	doubt	2	neg	0012100000	pos	(syphilis Cerebral-
16774	pos	neg	762	s.pos	0000012321	s.pos	Cerebro-spinal Syphilis
16863	neg	neg	26	neg	0001220000	sl.pos	Tabes dorsalis
16253	pos	neg	0	neg	0001100000	neg	Cerebral Syphilis
16846	pos	neg	34	pos	0013221000	pos	Neuro-Syphilis
P.(V.C)	4 plus	4 plus	3	doubtful	1233210000	neg	Tabes
McG(VC)	4 plus	4 plus	3	1 plus	5555543100	sl.pos	Tabes
K(V.C)	1 plus	4 plus	9	4 plus	1123210000	neg	Tabes
W(V.C)	4 plus	4 plus	42	trace	1112321000	neg	Tabes
L(V.C)	neg	4 plus	106	3 plus	5555431000	sl.pos	Tabes
J(V.C)	4 plus	neg	76	neg	0000000000	neg	Secondary Lues
M(V.C)	1 plus	4 plus	0	trace	1123321000	neg	Tabes
B(V.C)	2 plus	4 plus	46	1 plus	1223321000	neg	Tabes
W.(VC)	1 plus	4 plus	22	4 plus	5443321000	sl.pos	Tabes
S(V.C)	4 plus	4 plus	10	pos	0000000000	neg	Tabes
D(V.C)	4 plus	4 plus	25	2 plus	5554331000	neg	Tabo-Paresis
M(V.C)	4 plus	4 plus	22	2 plus	5555554321	sl.pos	Tabo-Paresis
B(V.C)	n.d.	4 plus	n.d.	neg	1123210000	neg	Tabes
F(V.C)	4 plus	4 plus	90	2 plus	5555542100	sl.pos	Tabes
K(V.C)	4 plus	4 plus	0	trace	1123210000	neg	Cerebro-spinal Syphilis
P(V.C)	neg	4 plus	5	neg	1233210000	neg	Tabes

TABLE III.

TWO GROUPS OF TABETICS AS DIFFERENTIATED BY THE COLLOIDAL GOLD AND A. A. S. REACTION IN CASES FROM THE VANDERBILT CLINIC, NEW YORK CITY.

(a) *Cases in Group I.*

1. *E. P.*
Gold Sol. 1232210000.
A. A. S. neg.

2. *J. K.*
Gold Sol. 1123210000.
A. A. S. neg.

3. *B. W.*
Gold Sol. 1112321000.
A. A. S. neg.

4 *W. M.*
Gold Sol. 1123321000.
A. A. S. neg.

5. *C. E.*
Gold Sol. 1223321000.
A. A. S. neg.

6. *F. B.*
Gold Sol. 1123210000.
A. A. S. neg.

(b) *Cases in Group II.*

1. *D. M.*
Gold Sol. 5555431000.
A. A. S. sl. pos.

2. *J. L.*
Gold Sol. 5555431000.
A. A. S. sl. pos.

3. *C. W.*
Gold Sol. 5443321000.
A. A. S. sl. pos.

4. *L. F.*
Gold Sol. 5555542100.
A. A. S. sl. pos.

TABLE IV.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUID OF IMBECILES.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(N)	(R-J)	(AAS)	(Gold Sol
16788	pos	neg	7	n.d.	n.d.	neg	n.d.
9473	neg	neg	0	neg	neg	neg	0000000
13904	neg	neg	2	neg	neg	neg	n.d.
16901	neg	neg	2	neg	neg	neg	n.d.
14171	pos	neg	0	neg	neg	neg	0000000
15912	pos	neg	n.d.	n.d.	n.d.	neg	n.d.
15877	neg	neg	n.d.	n.d.	n.d.	neg	n.d.
12973	pos	neg	n.c.#	n.d.	n.d.	neg	n.d.
12277	n.d.	neg	1	n.d.	n.d.	neg	n.d.
16987	neg	pos	n.d.	pos	pos	s.pos	0000000
17037	neg	neg	0	neg	neg	neg	n.d.
16332	n.d.	n.d.	n.d.	sl.pos	neg	neg	n.d.
15838	pos	neg	123	s.pos	s.pos	s.pos	0011555
11387	pos	neg	n.d.	n.d.	n.d.	pos	n.d.

Not counted.

TABLE V.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUIDS OF CASES WITH PSYCHOSIS DUE TO ARTERIOSCLEROSIS.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(N)	(R-J)	(AAS)	(Gold Sol)
16800	neg	neg	3	neg	neg	neg	0001110000
16759	neg	neg	0	neg	neg	neg	0000000000
16633	neg	neg	0	pos	neg	pos	n.d.
16265	pos	neg	6	pos	neg	pos	5553210000
16188	neg	neg	1	pos	neg	pos	2441111000
16780	neg	neg	2	neg	neg	neg	0000000000
16710	neg	neg	0	neg	neg	neg	0000000000
16580	neg	neg	n.d.	neg	neg	neg	0000110000
17004	neg	neg	3	sl.pos	neg	neg	0000000000
M.S.	neg	neg	2	neg	neg	neg	0000000000

TABLE VI.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON CASES OF SENILE DEMENTIA.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(N)	(R-J)	(AAS)	(Gold Sol)
15251	neg	n.d.	0	neg	neg	neg	0001000000
16908	pos	pos(w)	8	pos	pos	pos	n.d.
13487	neg	neg	2	neg	neg	neg	0000000000
15865	neg	neg	2	neg	neg	neg	0000000000
16695	neg	n.d.	1	neg	neg	neg	0001110000
16722	neg	neg	1	neg	neg	neg	0001100000
16879	neg	neg	2	neg	neg	neg	n.d.
16711	pos.	neg	2	neg	neg	neg	n.d.
15340	n.d.	neg	0	neg	neg	neg	0001100000
12502	n.d.	n.d.	n.d.	pos	pos	pos	5211111000
16705	neg	neg	n.d.	pos	neg	neg	n.d.
16354	n.d.	neg	n.d.	neg	neg	neg	0000000000
15251	neg	neg	n.d.	s.pos	s.pos	pos	0000122221

TABLE VII.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON CASES OF DEMENTIA PRÆCOX AT CONNECTICUT STATE HOSPITAL.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(N)	(R-J)	(AAS)	(Gold Sol)
16784	pos	neg	0	n.d.	n.d.	neg	n.d.
6875	neg	neg	1	neg	neg	neg	0000000000
16831	neg	neg	3	neg	neg	neg	n.d.
16854	pos	neg	0	pos	neg	neg	n.d.
546	neg	neg	1	neg	neg	neg	n.d.
3754	neg	neg	1	neg	neg	neg	n.d.
16821	neg	neg	2	pos	neg	neg	n.d.
16674	n.d.	n.d.	n.d.	pos	neg	neg	n.d.
6898	pos	neg	1	neg	neg	neg	n.d.
2570	pos	neg	0	neg	neg	neg	0000000000
2076	pos	neg	0	neg	neg	neg	0000000000
818	n.d.	n.d.	8	neg	neg	neg	n.d.
014	neg	neg	n.d.	neg	neg	neg	n.d.
997	n.d.	n.d.	n.d.	neg	neg	neg	n.d.
5315	neg	n.d.	n.d.	pos	pos	neg	n.d.
472	neg	n.d.	n.d.	n.d.	n.d.	neg	n.d.
6048	n.d.	neg	0	sl.plus	neg	neg	0000000000
7019	neg	neg	1	neg	neg	neg	0001100000
752	neg	neg	n.d.	n.d.	n.d.	pos	1113221000
217	neg	neg	n.d.	n.d.	n.d.	neg	0001110000
3945	neg	neg	n.d.	neg	neg	neg	0000000000
2628	n.d.	n.d.	n.d.	n.d.	n.d.	neg	0000000000
6926	neg	neg	0	neg	neg	neg	n.d.
4704	pos	wk.pos#	n.d.	sl.pos	sl.pos	sl.pos	n.d.

Weakly positive.

TABLE VIII.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUIDS OF CASES WITH MANIC DEPRESSIVE PSYCHOSIS AT CONNECTICUT STATE HOSPTAL.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(M)	(R-J)	(AAS)	(Gold Sol)
15075	neg	neg	1	neg	neg	neg	n.d.
14397	neg	neg	3	pos	neg	neg	0000000000
12833	n.d.	n.s.*	3	neg	neg	neg	0000000000
15702	neg	neg	n.d.	neg	neg	neg	0011100000
7332	n.d.	neg	0	pos	neg	neg	0001221000
16519	neg	neg	n.d.	n.d.	n.d.	pos	5553331100
16952	neg	neg	3	neg	neg	neg	0000000000
17068 A	neg	neg	3	neg	neg	neg	0000000000
E.K. B	neg	neg	0	neg	neg	neg	0000000000

* Not satisfactory. (A) 17068—Involution Melancholia. (B) E. K.—Involution Melancholia.

TABLE IX.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUIDS OF PSYCHOSIS DUE TO ALCOHOLISM AT CONNECTICUT STATE HOSPITAL.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(M)	(R-J)	(AAS)	(Gold Sol)
16752	neg	neg	1	neg	neg	neg	0001100000
16765	neg	neg	1	neg	neg	neg	0000000000
16977	neg	n.d.	2	neg	neg	neg	0000000000
15364	n.d.	n.d.	n.d.	n.d.	n.d.	neg	n.d.
J.G(1)	neg	1	pos	neg	neg	doubt pink	0001110000
V.(2)	neg	neg	1	pos	neg	neg	0000000000

J. G. (1)—Korsakoff's psychosis. V (2)—Delirium tremens.

TABLE X.

ACETIC ANHYDRIDE-SULPHURIC ACID TEST ON SPINAL FLUID OF EPILEPTICS.

Case	(B.W.)	(Sp.F.W.)	(Cells)	(M)	(R-J)	(AAS)	(Gold Sol)
16881	neg	neg	1	n.d.	n.d.	neg	0000100000
15032	neg	neg	2	neg	neg	neg	n.d.
15777	neg	neg	2	neg	neg	neg	0000000000
14514	pos	neg	2	neg	neg	neg	0000000000
13904	neg	neg	2	neg	neg	neg	n.d.
15592	n.d.	n.d.	0	(s)pos	neg	neg	n.d.
16558	neg	neg	n.d.	neg	neg	neg	n.d.
J.B.	n.d.	n.s.	n.d.	neg	neg	neg	n.d.

CONCLUSIONS.

1. The A. A. S. test is 100 per cent positive with spinal fluids from cases of general paresis.

2. Among psychiatric cases, the A. A. S. test was found positive predominately in cases with neuro-syphilis.

3. The more advanced and active we find the syphilitic condition of the central nervous system, the more positive will be the A. A. S. reaction. In syphilitic clinics, the test may prove to be valuable in the prognosis of neuro-syphilis.

4. In psychoses not due to or complicated with syphilis, and of a functional nature, the A. A. S. test is negative.

5. For the present I am not fully convinced that the A. A. S. test is specific for neuro-syphilis, but it is more apt to be evidence of the destructiveness of the spirochæta palidum on nervous tissue—more an index of degenerate nerve tissue.

6. The A. A. S. test differentiates two groups of tabetics, one giving a negative reaction, the other showing a slightly positive reaction.

In four cases of neuro-syphilis with a negative spinal fluid Wassermann, the A. A. S. test was positive.

RELATION OF PUBERTY TO BEHAVIOR AND PERSONALITY IN PATIENTS WITH DEMENTIA PRÆCOX.

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That many individuals who develop dementia præcox give a history of previous peculiarities of behavior [1] has come to be well recognized. The existence of a shut-in or seclusive personality [2] before the onset of psychotic symptoms is considered to have considerable diagnostic and prognostic significance. Individuals with psychopathic personalities characterized by inadequate or superficial,[3] or by delinquent, anti-social or criminal behavior may also develop dementia præcox [4] or have acute psychotic attacks which may or may not be followed by deterioration.

To explain the relation between personality and psychosis various theories have been advanced. One view [5] is that the psychosis is a behavior or personality reaction dependent on and growing out of the faulty habitual reactions which characterize the personality. The psychosis is the way the abnormal personality eventually comes to react to the difficult situations of life. This places the personality in more or less of an etiologic relationship to the psychosis. Another view (Kraepelin) is that the abnormalities of personality are early symptoms of the same underlying disease process which may later produce the psychosis. When the psychosis develops the personality will color the clinical picture, but the essential symptoms will be more directly dependent on the underlying disease process

[1] Meyer, Adolf: An Attempt at Analysis of the Neurotic Constitution. Am. Jr. Psychology, 14, 90, 1903.

[2] Hoch, August: Constitutional Factors in the Dementia Præcox Group. Rev. Neurology and Psychiatry, 8, 463, 1910.

[3] Kirby, Geo. H.: Cited by Hoch.

[4] Kraepelin, E.: Dementia Præcox, Barclay Translation, Edinburgh, 1919.

[5] Meyer, Adolf: The Dynamic Interpretation of Dementia Præcox. Am. Jr. Psychology, 21, 385, 1910.

(Bleuler). Hoch[6] regarded "the peculiarities of the personality, and the psychosis both, as deviations along the same line and as phenomena of the same nature," partly dependent on constitutional and partly on environmental or "psychogenic" factors. He pointed out that in degenerates "the tendency to abnormal reactions through life, together with the great importance which heredity plays in them," were considered to indicate the constitutional nature of the disorder. These factors were equally prominent in dementia præcox as in other constitutional psychopathics.

Whatever explanation one is inclined to accept, further consideration leads to two questions: First, when and where does the individual get his peculiar personality? Second, where does personality leave off and psychosis begin, or up to what point may a given case be said to have displayed only a seclusive personality and beyond which he had a psychosis? The second question does not imply, of course, that the characteristic personality may not be carried over into the psychosis and give color to the clinical picture or even determine the type of psychotic reaction. The observations and discussion to be presented here deal with certain factors in the formation of personality, and the difficulty in differentiating, in many cases, between the appearance of a seclusive type of behavior and the actual onset of the psychosis.

For the consideration of the origin and time of appearance of seclusive or other psychopathic traits personality is best defined in terms of habitual behavior reactions. Amsden[7] defines personality in terms of behavior as "the aggregate of those personal habits, which, by continuous employment, have become so ingrained in the individual that those who know him can rather closely predict what course of action, what mental attitude, and what emotional responses he will display under given circumstances." Obviously then, we are to go back through the life history of the individual and attempt to follow the evolution of his behavior to determine what factors have played a part in the formation of his peculiar habits and attitudes in conditioning the habitual mode of response, in shaping

[6] Hoch, August: Personality and Psychosis. Am. Jour. Insanity, 69, 887, 1913.

[7] Amsden, Geo. S.: The Study of the Personality in Psychiatric Cases. Proceedings of the American Medico-Psychological Assn., 1918, p. 273.

the pattern of the reaction.[8] In this way may be taken a more "dynamic" view of the personality, for the habitual behavior reactions are undergoing constant modification and evolution, at least until mature years are reached. The time and circumstances under which marked modifications and changes in behavior occur would receive first consideration. The need for such analysis was early indicated by Meyer.[1]

In following the evolution of behavior in patients with dementia præcox it has been observed that a definite change in behavior and personality occurred at puberty in certain cases, even when the psychoses did not immediately develop. Similar changes were also noted to have occurred in some patients with psychopathic personalities who had acute psychotic attacks from which they recovered. In the accompanying table is shown a group of cases illustrating the character of changes occurring at puberty, and in which a more or less definite period elapsed before the appearance of the psychosis. The table is arranged to show the behavior in childhood, the changes observed at puberty, and the subsequent psychosis. The histories in these cases were obtained by Drs. V. C. Branham and L. E. Hinsie of the Institute staff, and final clinical diagnosis has been concurred in by Dr. G. H. Kirby, director.

The dominating features of the childhood behavior and the change at puberty in these cases may be summarized and characterized as follows:

Case.	Childhood.	Puberty.
1. Male	Timid	Aggressive, anti-social.
2. Male	Good boy	Anti-social.
3. Male	Active and lively	Seclusive.
4. Male	Sociable	Shy.
5. Female	Lively and vivacious	Seclusive.
6. Male	Quiet and retiring	More seclusive.
7. Male	Quiet and serious	Seclusive.
8. Female	Lively, cheerful	Seclusive.
9. Female	Active, "tom-boy"	Quiet and seclusive.

It will be noted that some who had been quiet and good children became active and anti-social at puberty while others became definitely seclusive. On the other hand, those who had been active and lively children became seclusive at puberty. In several cases, espe-

[8] Watson, John B.: Psychology from the Standpoint of a Behaviorist. Lippincott, Philadelphia, 1919.

TABLE I.—CASES WITH CHANGE IN PERSONALITY AT PUBE

No.	Childhood.	Age.	Pu
1.	Male. Born 1901. Timid as a child. School work and deportment good.	13. Became aggressive, fough[t] her b[ut] delicate. Associated w[ith] gang." Failure in school work wi[th] conduct to control. Total failu[re] hool at 16-19. Many jobs, frequently [chan]ged. Cl	
2.	Male. Born August, 1905. Good boy. Attached to mother. School work good.	13. Sudden failure in school w[ork] Truanc[y] Children's Court, January [1920]. Encephalitis July, 1920. Arrested for stealing Octo[ber] to March, 1921. Peddling ("bootlegging") [liq]uor. Ap[p] Member of a "gang." Growth of 3 inches in 6 m[on]ior to	
3.	Male. Born October, 1897. Played freely with boys. Lively and active. School work good. Slept with father until 6. Bed-wetter until 8, for which father beat him.	12. Applied himself more t[o] studies, but retained his old frie[nds] 14. Change in attitude toward [girls], espec[ially] Fault finding, quarrelso[me]ness. Began to take an interest in [girls]. Grew tall and thin. 15. Masturbation. 15-18. High school. Graduated [1918]. Ag	
4.	Male. Born June, 1888. Sociable. Graduated in pharmacy.	Became shy at puberty. Attached to mother. Is of small stature (144 cm.) [sister]	
5.	Female. Born April, 1899. Played freely. Lively and vivacious. Many girl friends. Very obedient until 7 when began to show some temper and became a little stubborn. A "fat and heavy" child.	14. Bad temper became well m[arked]. Beca[me] seclusive. Menstruated at 14. Exces[sive] day f[low] 15. Grew up rapidly and beg[an] be thi[n] "Until I was 16 I had [no] girl f[rie]one." "In recent years [I] had but 18-21. Went out to some par[ties] and the friend, occasionally wi[th] an.	
6.	Male. Born July, 1898. Played ball some, but quiet and retiring. Attached to mother. School work good. Bed-wetter to 14.	14. Fixation of interest on "[girls]." father's store in an indi[rect] way. 15. Went out with girls and [for] a [time] mother urged that he [go] you[ng] more seclusive and depe[nd]ent on mot[her]	
7.	Male. Born February, 1896. Quiet and serious boy. Shy with strangers. Played with other boys, not seclusive. Out of school frequently by sickness. Mother spoiled him.	14. Excessive masturbation. [Doctor] 14-15. High school, work poor. [Arrested] with girls. 16-17. Appendicitis. In bed s[ix] month[s] Rapid growth, became thi[n] all (1[70] Became seclusive at pube[rty]. Loss o[f] "I was not timid until I g[ot] tall and 18. Drinking. Difficulty in h[olding] jobs.	
8.	Female. Born February, 1878. Lively as a child. Played freely. Obedient, cheerful School work apparently satisfactory until 12.	12. Menstruation. 5 days, ra[ther] profuse. [Co]motion at 12. Left sch[ool] 13. S[tay] 15. Rapid increase in weight; [160] seen ve[ry] Shut in and seclusive afte[r]. Twice and learn dressmaking [but] turned Limited interests. Did n[ot] it wit[h] "My mother just kept m[e] home." 27. No social life or love affa[irs] til 27 man who had a room i[n] house forced to marry her. [Lived] lif[e] circumscribed, 3 childre[n]	
9.	Female. Born December, 1861. Was rather a "tom-boy." Somewhat wild. "My mother said I was just like a boy, so active, preferred to play with boys, and mischievous, then at abut 11 I turned and was so quiet they were all surprised. I do not remember those early years, and the change in me" School work good.	11. Became quiet. Kept to h[er] Did Lacked activity. 14. Fainting attacks with rig[id] which less frequent, and none [after] 24 (f[rom] epileptic). 17. Menstruation. Scanty. S[ome] dysm[enorrhea] 22. Married. Sexually indiffe[rent] and c[old] Worrysome and depressive [temper]am[ent] symptoms after about 25	

	Age.	Psychosis.
fough ther boys although thin and ted w gang." rk w nduct. Difficult for teacher failu hool at 16. Rapid growth. ently d. Chronic cough.	20.	Idle for 6 months before admission. Adm.: April, 1921. Age 20. Diagnosis: Dementia præcox. Simple.
chool Truancy. nuary 920. Octo Protectory October, 1920, ging") key April, 1921. " n 6 m rior to May, 1921.	16.	May, 1921. Suddenly quiet and seclusive. 1st Adm.: August, 1921. Delusions referred to man for whom he peddled whiskey, with fear of him. Paroled November, 1921. Diagnosis: Psychosis with psychopathic personality. Paranoid, hallucinatory episode. Recovered. December, 1921-January, 1922. Peddled drugs. Went armed. Excessive masturbation and homosexual practices. 2d Adm.: February, 1922. Paroled July, 1922. Same diagnosis. 3d Adm.: September 6, 1922, same diagnosis.
re t ladies, preferred to be alone, ld fri owar , especially father and sister. rrelso ly. erest aduat 6. Age 18.	19.	October, 1912. Entered college, worked at night. Abscess of jaw. " Broke down." Stopped school and work. Felt weak and run down. Quiet. Dull. In seclusion at home several months. Silly laughing. February, 1917. Began associating with a gang. Drinking. May, 1917, arrested. Jail 16 days. 1st Adm.: June, 1917. Paroled July, 1917. Manic-depressive. Manic type. 2d Adm.: April, 1922. Paroled August 18, 1922. Diagnosis: Dementia præcox. Hebephrenic. Much improved.
rty. (144 t sisters not fully developed).	27.	January, 1915. Accused of theft which occurred in the pharmacy where he worked. This was followed by ideas of reference, being watched, poisoned. April 4, 1915. Acute episode. Mute. Semistuporous. Spoon fed. Adm.: May, 1915. Diagnosis: Dementia præcox. Catatonic.
well m. Became irritable, selfish and Exce day flow. d beg be thinner. had l girl friends, than I had just years d but one." e par d theatre, usually with girl y wi an.	21.	Quarrel with girl friend. Fancied herself in love with a man to whom she had not been introduced. July, 1920. Became talkative, then quiet. Stayed in house. Read or looked out of the window in an absorbed way. Improved and worked for few months. May, 1922. Second episode. Ideas of reference. Fancied herself in love with her employer. Laughing. Became excited and screamed. Wandered about streets. Adm.: May, 1922. Diagnosis: Dementia præcox. Hebephrenic.
on "ess." Quit school, worked in indi way. and for a time, but stopped when he w young. Bashful. Became depe n mother.	22.	May, 1920. Acute episode while at sea as wireless operator. Adm.: July, 1920. Diagnosis: Dementia præcox. Catatonic.
on. octor about it. poor rested in art. Went out some ed se months. e thi all (182.5 cm.). pube Loss of friends. il I all and thin." in h jobs.	21.	Had done well for 6 months as theatrical designer when work stopped and he was out of a job. November, 1917. Became despondent, inactive, mild ideas of reference. Stayed in his room. Adm.: January, 1918. Diagnosis: Dementia præcox. Simple.
s, ra fuse. School: Failed of pro- sch 13. Stayed at home. ght; en very thin. afte Twice tried to go out to work ting turned home. id n t with friends. pt m me." affa til 27 when had relation with om i house. Pregnant and he was er. ed life satisfactory, but quite ildre	43.	July, 1921. Ideas of reference. Adm.: August 15, 1922. Diagnosis: Emotional, paranoid episode. Prognosis uncertain.
to h Did things slowly. rig which kept up until 18, then none 24 (father, sister and brother y. S dysmenorrhea. ndiffe nd cold. No children. essive erament with hypochondriacal ut 25	40. 50. 60.	Depression lasting 6 months. Depression following death of husband. Continued hypochondriacal. Menopause at 54. For past year continually depressed, inactive and with feeling of inadequacy. Adm.: June, 1922. Diagnosis: Manic depressive. Depressed phase.

cially where there was a reversal in the type of behavior, the change occurred so suddenly and was so marked that the exact time of its occurrence was recognized and remembered. It appears, then, that in some cases puberty plays an important part in the formation of seclusive and other types of psychopathic personality, and that this should be considered in estimating personality prior to the psychosis.

As to the source of the peculiarities of personality appearing at puberty, the factors which condition to an abnormal degree the behavior reactions at this time, two sets of factors must be considered. The chief differences of opinion which exist as to the etiology of dementia præcox and other " functional psychotic reactions " refer to the relative importance of these various factors in producing the peculiarities of personality as well as in producing the psychosis. On the one hand is emphasized the importance of external, environmental, and psychologic factors, matters of experience or what the individual has lived through, while, on the other hand, are emphasized the internal, physiologic, constitutional, and hereditary factors. The former refer more to the nature and intensity of the stimulus, and the latter more to the mechanism and its capacity to respond. That many factors in both contribute to the ultimate result there can be little doubt. At puberty the individual and the organism are especially susceptible to the influence of these factors. On the one hand the individual is easily, and more or less permanently, influenced by his environment and the life experiences occurring at this time, while, on the other hand, profound biologic changes are taking place in the organism.

It is well recognized that the personality undergoes at puberty a marked transformation and refinement, and that in the process the behavior of many boys and girls is considerably disturbed.[9] They become restless, difficult to manage at school, rail at parental authority and restraint, run away from home, commit minor offenses, and so display many of the behavior characteristics which, if they continue, become fixed and form the various types of psychopathic personality. Fortunately, however, most boys and girls " out-grow " or live through this stormy period and become well-balanced normal persons. Just why some do not weather the storm is the question on which more evidence is needed.

[9] Hall, G. Stanley: Adolescence. Appleton, New York, 1911.

As for the constitutional factors which may influence behavior at puberty, it is of interest to note that in his exhaustive study of the relation of puberty to behavior, delinquency, crime, and insanity, Marro[19] emphasized the importance of two factors, disturbances of growth and metabolism, and hereditary defects. He pointed out that abnormal and impulsive behavior at puberty, and psychoses occurring then, were frequently associated with very rapid and uneven growth in some cases and with retarded development in others. He considered that disturbances of metabolism occurring at puberty involved the internal secretions, and studied the metabolism of animals before and after castration. At the present time it is being pointed out that some delinquent or otherwise psychopathic individuals also show disturbances of physical development and metabolism which are considered to be due to disturbed function of the endocrine glands. In a few such cases the behavior is said to be definitely influenced by gland feeding. However, the conclusion that we have thyroid, adrenal, and pituitary personalities hardly seems justified from the evidence. By reference to the table it will be seen that rapid growth and other evidences of disturbed metabolism were observed in most of the cases here reported.

With the unevenness of physical development shown by some psychopathic individuals Marro correlated their unevenness of mental development or personality, pointing out that " we see sometimes the regular development of intelligence, of faculties of preception and thought, with lack of development of moral and affective faculties." It is now recognized that intellectual defect is not essential to the various types of psychopathic personality, although some mental defectives are psychopathic and may develop dementia præcox. The more essential features of the psychopathic personality are considered to involve emotions and sentiments and instinctive behavior. The sudden failure in school work which was the first evidence of a change in personality in some of the cases here cited was not due to the failure of intelligence so much as an interference with the use of it.

As for a direct and specific, cause and effect, relation between the physiologic changes at puberty and the changes in behavior which occur at the same time, our present knowledge only allows us to speculate. It seems worth while to consider together, however,

[19] Marro, A.: La Puberté, Paris, 1902.

that the essential and fundamental changes of puberty are biologic and that the behavior changes which characterize the psychopathic personality relate to emotional and instinctive factors. There is considerable evidence to indicate that these biologic processes of growth and metabolism must carry the organism on to physical and functional perfection and maturity before maturity and socialization of emotional and instinctive behavior can be attained. It seems quite possible that the biologic changes awaken and activate the more or less dormant reproductive instinct and the emotions which drive it, the instinctive and social behavior reactions being thereby conditioned and new ones formed. Abnormalities in the biologic factor would then be expected to be reflected in the behavior. Since the biologic changes involve the gonads and the behavior changes involve the instinct of reproduction, it seems no wonder that their manifestation should be in reference to sex and give a sex coloring to the clinical picture of the psychosis in so many cases.

These biologic processes probably involve, not only the gonads, but even more essential and more fundamental processes of metabolism which go on before puberty and which are essential to physiologic puberty. As has been pointed out elsewhere,[11] other glands and other functions are essential to physiologic puberty as well as the gonads, and the psysiologic inadequacy shown by some of these individuals seems to be a total one involving to whole organism rather than specifically gonadal. The existence of psychopathic traits before puberty in certain cases indicates the " reaching back into childhood " of these biologic inadequacies. It is of interest to note the poor memory for these early psychopathic periods in certain cases.

As for the contribution of heredity to psychopathic personality, Marro emphasized the frequency with which hereditary defects of character appeared at puberty, and that in individuals who bore a latent hereditary defect the stress and strain of puberty was more marked. The abnormal behavior at this period was much more marked and likely to become fixed and persist. It is of interest here to note the recent exhaustive study in personality in the antecedents and collaterals in 30 families in which dementia præcox occurred,

[11] Gibbs, C. E.: Sex Development and Behavior in Male Patients with Dementia Præcox. Arch. Neurology and Psychiatry—9. 73. Jan. 1923.

which was made by Boven.[12] He found that the " abnormal character traits " which characterize the personality of future cases of dementia præcox also abound in their families. In the 30 families there were 295 uncles, aunts, fathers, and mothers, and of those 50 per cent showed abnormal characters. Both parents showed abnormal characters in 50 per cent and one or both parents in 86 per cent. He considers dementia præcox to be the " fatal effect of a summation of insociable character traits," as a cumulative effect, and the occurrence of dementia præcox to be in proportion to the extent and intensity in which these traits exist in the antecedents, including uncles and aunts. He recognizes also the importance of emotional precipitating factors.

With reference to the second question, as to where psychopathic personality leaves off and psychosis begins, it is merely desired to point out the difficulty of determining this point in many cases. In patients who become definitely seclusive at puberty but who make some kind of an adjustment and go on until acute psychopathic symptoms are precipitated by an emotional situation or appear without apparent cause, are we to say that they had dementia præcox from the time they became seclusive? To be considered in this connection are the cases in which the psychosis comes on suddenly at puberty in patients who had not previously shown seclusive or other definitely abnormal behavior. In some such cases the patient suddenly becomes seclusive and the more marked psychotic symptoms immediately follow. In the cases here reported it would have been quite difficult to predict that the psychosis would not immediately follow the appearance of seclusive behavior.

SUMMARY.

1. Cases are reported in which a definite change in personality appeared at puberty, with the actual psychosis developing later.

2. Most of the cases also gave a history of rapid growth or other disturbance or metabolism at puberty.

3. The relation of puberty to psychopathic behavior is discussed.

4. In certain cases of dementia præcox it is difficult to determine whether seclusive behavior appearing at puberty is a part of the personality or a part of the psychosis.

[12] Boven, W.: Caractère individual et aliénation mentale. J. de Psychologie, 18, 242, 1921.

Étude sur le conditions du developpement au sein des familles, de la schizophrénie et de la folie maniaque-dépressive. Archives Suisses de Neurol. et de Psychiatrie, 8, 88, 1921.

Notes and Comment.

DR. HENRY M. HURD'S EIGHTIETH BIRTHDAY.—On the third of May last Dr. Henry M. Hurd, for a long time Editor-in-Chief of this JOURNAL and for several years Editor Emeritus attained the age of four-score years.

This is not the time nor is it our purpose to make a sketch of Dr. Hurd's active, honorable and useful career as student, physician, medical superintendent of a hospital for mental disorders; superintendent and organizer of what has been for many years the best known general hospital in the United States, the Johns Hopkins Hospital of Baltimore, teacher and editor.

In 1897 Dr. Hurd became one of the Editorial Board of this JOURNAL and its Editor-in-Chief. It is unnecessary to recount what he did in elevating the standard of the periodical which had long stood alone as the exponent of psychiatric thought and practice in this country. Suffice it to say that his work on the JOURNAL met with prompt recognition and approval.

His duties as the director of a large hospital did not interfere with his editorial activities, which were not confined to this publication alone, but found other outlets of importance, notably the *Bulletin of The Johns Hopkins Hospital* and the annual and medical reports of that institution and for a time in editorial work on *The Modern Hospital.*

On the evening of May third, 1923, there gathered at a dinner at the Maryland Club in Baltimore some sixty or more of Dr. Hurd's friends and fellow workers bent upon honoring the occasion and the man whose birthday it marked, as well as upon showing their affection for the honored guest of the evening.

The President of the Johns Hopkins University; the Presidents as well as several members of the governing boards of the University and the Hospital; members of the faculty of the medical school and of the hospital staff, representatives of the medical profession of Baltimore, New York, Philadelphia, and other places were happy in being able to sit at the birthday feast with the man with whom they had worked in one capacity or another for many years, or from whose wise counsel and large experience they had drawn help and inspiration, and whose lovable traits of character they were happy to rehearse.

The chair was occupied by Professor William H. Welch, who alone of all those present had been associated with Dr. Hurd from the beginning of his career in Baltimore, both in the hospital and in the faculty of the medical school.

The various speakers called upon by Dr. Welch, after his own most felicitous greeting to the guest of the evening, touched upon various phases of Dr. Hurd's work as hospital superintendent, teacher, editor and general friend and counsellor of all needing help, advice or sometimes admonition.

There were numerous letters and telegrams from friends unable to be present, but who wished to join with those more fortunate in expressing congratulations and best wishes. Among these was a cablegram from Oxford from Lady Osler, who sent a message of greeting in memory of the happy days when her late husband, Sir William Osler, was affectionately known as "the chief," and was intimately associated with Dr. Hurd in the upbuilding of The Johns Hopkins Hospital.

Dr. Hurd's reply, at the close, to the words of his friends was most appropriate and in its spirit of self effacement, when he touched upon the complementary things which had been said to and about him, was most characteristic of the man.

The Psalmist has said: "The days of our years are three-score years and ten; and if by reason of strength they be four-score years, yet is their strength labor and sorrow."

Those who know Dr. Hurd will recognize that the "strength" which has carried him along to four-score has been a strength of spirit rather than of body.

He has quietly day-by-day performed the tasks set before him with a single end and purpose in view, to give that which was within him to the service of mankind in calmness and serenity of mind, unperturbed by turmoil and strife, for he would have none of them, unharassed by the thought of tomorrow, for the morrow was to be met when it came.

His daily tasks were not considered "labor"; cheerfulness and optimism and not "sorrow" marked their performance.

Time has not only brought him those rewards which accompany old age, "as honor, love, obedience, troops of friends," but it has also brought him, or rather it has ripened within him, that spirit which reviews the path over which he has come with the quiet satis-

faction which comes from a race well and honestly run, and contemplates the path which lies before with faith and hope.

Of his four-score years one may say with Johnson they mark

> An age that melts with unperceived decay,
> And glides in modest innocence away;
> Whose peaceful day Benevolence endears,
> Whose nights congratulating Conscience cheers;
> The general favorite as the general friend:
> Such age [his] is and who shall wish its end?

CHANGE IN THE EDITORIAL BOARD.—At the seventy-ninth annual meeting of the American Psychiatric Association held in Detroit, Michigan, June 19, 20, 21, 22, the Council appointed Dr. George H. Kirby, Director of the Psychiatric Institute of the New York State Hospitals, Ward's Island, New York, a member of the Editorial Board of the AMERICAN JOURNAL OF PSYCHIATRY in place of Dr. J. Montgomery Mosher, deceased.

Dr. Kirby received the degree of B. S. in 1896 from the University of North Carolina and M. D. in 1899 from the Long Island College Hospital Medical School. He was an assistant physician at the Worcester, Mass., State Hospital until 1902 and Associate in Clinical Psychiatry at the Psychiatric Institute of the New York State Hospital from 1902 to 1908. He then became Director of Clinical Psychiatry at the Manhattan State Hospital, where he remained until 1917, when he was appointed to the position which he now holds.

Since 1917 he has been Professor of Psychiatry in the Medical School of Cornell University and he has had editorial experience in the publications of the New York State Hospital Commission. We believe that Dr. Kirby will be a valuable addition to the Editorial Staff to which we welcome him.

THE JOURNAL ENTERS UPON ITS EIGHTIETH YEAR.—It is an interesting coincidence that just as Dr. Hurd, for several years the Editor-in-Chief of this JOURNAL completed his eightieth year, to which reference is made above, the JOURNAL enters upon its eightieth volume.

In July, 1844, the first number of *The American Journal of Insanity* was published at Utica, New York, edited by Dr. Amariah

Brigham, Medical Superintendent of the State Lunatic Asylum, now the Utica State Hospital.

The JOURNAL was published regularly under the editorship of the Medical Staff of the Utica institution until 1894 when it became the property of The American Medico-Psychological Association now The American Psychiatric Association—and for three years was edited by a board consisting of Dr. Edward Cowles of Boston, Richard Dewey of Chicago and Henry M. Hurd of Baltimore. It was published during this period in Chicago and was under the editorial management of Dr. Dewey.

In 1897 Dr. Dewey found it no longer possible to continue his editorial work and a new editorial board was appointed by the Council of the Association consisting of Drs. Henry M. Hurd, G. Alder Blumer, J. Montgomery Mosher, and Edward N. Brush.

The Johns Hopkins Press of Baltimore became the publishers, and the editorial management was undertaken by Dr. Hurd.

In 1921 the name of The American Medico-Psychological Association was changed to The American Psychiatric Association and *The American Journal of Insanity* became THE AMERICAN JOURNAL OF PSYCHIATRY.

The present issue is number one of volume three under the new title—volume eighty of the old series.

The first volume of the JOURNAL contained 396 pages, the seventy-ninth volume 759 pages. Dr. Brigham in the first number, July, 1844, gives the number of patients in institutions for the insane in the United States, public and private, as 2561.

Association and Hospital Notes and News.

THE SEVENTY-NINTH ANNUAL MEETING OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—The meeting of the Association in Detroit, June 19, 20, 21, 22, was in point of members in attendance, the number and character of the papers presented, and the general interest manifested, one of the most thoroughly successful meetings the Association has held.

Under the very able guidance of the President, Dr. H. W. Mitchell, of Warren, things were kept moving with clock-like precision and regularity.

His address which appears in this issue of the JOURNAL speaks for itself. We most sincerely hope that the several very wise and pertinent suggestions which he made concerning the conduct of the Association and particularly the organization of certain committees will be acted upon at the next meeting.

There are other matters in the address which may well receive the thoughtful attention of the Association, and which if wisely acted upon will inure to the benefit of the public and the profession and to the progress of psychiatry.

While, since the organization of the Association in 1844, it has had no written code of ethics there has been a general standard of fellowship in the Association between members and of ethical conduct toward the public of the best type.

The steady growth in the number of Fellows and Members, the numerous applications for membership received annually and other matters bearing upon the good standing of the Association, induced the recently formed Committee on Ethics to recommend in its first report that the Association formally adopt the Code of Ethics of the American Medical Association, which upon the advice and approval of the Council was done.

The report of the Committee on Nursing presented by Dr. Arthur H. Ruggles was a carefully worked out and well prepared document, and the unanimous adoption of its recommendations establishes a minimum standard of requirements for nursing schools and their curricula, essential to obtain the Association's approval of such schools, and their certificates of graduation.

There also came from the Committee on Pathological Investigation a report of much value outlining the standard requirements for a pathological laboratory which received the Association's approval.

These reports from the two committees, that on Nursing and on Pathological Investigation are clearly steps in the way of a general standardization of hospitals for mental disorders, such as is in progress in general hospitals and which was so pertinently touched upon in the address of the President, Dr. Mitchell.

Such a standardization as President Mitchell stated has a precedent in the early work of the Association, which almost from the outset of its activities formulated certain " propositions " which for a long time had a marked influence upon the construction, organization, and conduct of both state and private or incorporated institutions in this country. In other words a standard was set up.

As Dr. Mitchell pointed out, " between the best and the poorest methods employed in the care and treatment of mental disorders in the several states there is an unhappy comparison, which raises the question as to what the Association as such can do to aid in the improvement of conditions."

The paper of Dr. Hamilton upon " Standardization of Mental Hospitals " was a suggestive contribution to this subject. As he stated, the era of standardization is upon us. The public and the profession demand that mental hospitals rise to the plane attained by many general hospitals and unless the Association within its own ranks finds some means of establishing a standard which meets the demands of the time and of better medical work, a standard will be set up by others, not so well prepared perhaps to intelligently cope with the problems involved.

The Round Table Conferences were well attended and from what we observed from casual visits to two or three and heard from those in attendance at others the discussions were of a lively and enlightening character.

The conference which discussed problems connected with the Veterans' Bureau adopted after a very full and free discussion the following resolutions, which were transmitted to the Association through the Committee on Resolutions and were adopted with the report of that committee:

WHEREAS, The American Psychiatric Association, with a membership of approximately 1100 psychiatrists from all the states of the union and the

several political divisions of British America, at their annual meeting at Detroit, June 19 to 22, had under consideration the problems of the care of the mentally disabled veterans, and

WHEREAS, From the commencement of the World War this Association through the military and civilian services of its members was responsible for the care and treatment of the mental casualties of the war as well as the mental examination of the men inducted into service, and

WHEREAS, At the present time a large proportion of the membership is serving in a full-time, part-time or volunteer capacity in the care of the ex-service men so disabled, and

WHEREAS, It is the desire of the membership of this Association to see the care of the disabled ex-service men conducted throughout the country upon the highest level of humanity and scientific efficiency, and

WHEREAS, This Association, feeling full confidence in the purpose and ability of the Director of the United States Veterans' Bureau to discharge the government's obligation to these men, nevertheless has a deep appreciation of the difficulties and problems involved, now therefore be it

Resolved, That the American Psychiatric Association express its earnest belief that the experience of the past in caring for mentally disabled persons in civil or military life points the necessity of direction of this important and highly specialized work by a technically qualified physician who shall be responsible only to and shall serve directly under the Director of the United States Veterans' Bureau, and that only under such conditions can the highest degree of success be attained; and be it

Resolved, That the American Psychiatric Association proffer the Director of the United States Veterans' Bureau such advice, assistance and support as he at any time may desire and as it may be in its power to give; and be it

Resolved, That these resolutions be spread upon the minutes of this Association and a copy be transmitted by the secretary to General Frank T. Hines, Director of the United States Veterans' Bureau.

The weather in Detroit during the meeting was hot and the atmosphere humid, conditions which detracted from the comfort of those in attendance. The decision to meet next year at Atlantic City met with hearty approval.

DR. HAVILAND CONTINUES IN OFFICE AS SECRETARY.—There were rumors in the air before the meeting at Detroit and during the first day's session that Dr. Haviland's duties as Chairman of the N. Y. State Hospital Commission, which during the coming several months promise to be quite arduous would prevent the acceptance on his part of a re-election as Secretary of the Association.

Fortunately for the Association Dr. Haviland was induced to serve the Association for another year in an office for which he has shown capacity of a high order.

Book Reviews.

The Kingdom of Evils Psychiatric Social Work Presented in One Hundred Case Histories Together with a Classification of Social Divisions of Evil. By E. E. SOUTHARD, M. D. Late Bullard Professor of Neuropathology, Harvard Medical School; Director Boston Psychopathic Hospital, etc., and MARY C. JARRETT, Associate Director Smith College Training School for Social Work; formerly Chief of Social Service, Boston Psychopathic Hospital. With an Introduction by RICHARD C. CABOT, M. D., and a Note upon Legal Entanglement as a Division of Evil, By ROSCOE POUND, Dean of Harvard Law School. (*New York: The Macmillan Co., 1922.*)

"The philosopher," said Aristotle, "should end with medicine—the physician commence with philosophy."

Elmer Ernest Southard was both philosopher and physician. His work in the world exemplified these two capacities; his books embody them. This posthumous monument is the most characteristic of his productions. It is Southard.

Kant, it will be recalled, in considering the problem of progress pointed out that the data must first be scientifically collected and correlated before philosophical generalities could be laid down. He prophesied the rise of a Newton or a Gallileo of social science to blaze the trail for objective analysis of human history. Comte bade fair to fulfill this mission; he went so far (whether fallaciously or not) as to fix upon a positivistic sociology as the basis of the study of progress. Then followed the meteoric career of academic sociology, a career as disappointing in its unproductiveness as the career of academic psychology. Both concerned themselves with a delimited field, one of exteriors, the other of interiors.

Southard and Jarrett lived at a time when psychology as an academic science is crumbling before a dynamic revision of the conceptions of mind, and at a time when sociology as a science is disappearing before social work as an art. The spirit of this metamorphosis they crystallize in this book. Southard's philosophical point of view is the key to it. It is the key to the fact that this book is the modern text-book of Sociology, the child of masculine science (Psychiatry) and feminine art (Social Work).

Life, Southard was wont to quote Spencer, is the continuous adjustment of inner and outer relations. The psychologists and sociologists duly considered these respective fields, but neglected the interrelationships. These no one is better able to study in minutiæ than the psychiatrist, who observes the behavior of the maladjusted, the human units whose guiding mechanisms are so at variance with those of the majority of their fellows that they are regarded as ill. Every factor of the failure in adjustment, internal, external, and internal to external is considered and, soon or late, is seen in some clear, revealing light.

From these failures to live, Southard thought, we may learn of life—health from disease—good from evil—*bonum ex nocentibus*. This, I believe, was his most characteristic philosophical motivation. "How" asks Cabot, "could he (Southard) keep his sparkling, rosy cheeked good humor despite his contact with the black despairs or vacant minded animatity of the insane?" Here again the answer is to be found in his doctrine of *bonum ex nocentibus*. He was as he was not in spite of evil, but because of it. "To use the psychopathic by-products of society to its betterment, a sort of *similia similibus curantur* idea" he said. For example, "I would like to find the minimum brain machinery with which speech and thought processes get performed" he wrote Dr. Cabot—"and I hold that a proper medical, pedagogic, physiological and anatomical study of feeblemindedness will bring this ideal about more quickly than any other thing. . . . . feeling that a knowledge of feeblemindedness would bring a knowledge of thought."

This leads up to a discussion of Southard's conception of the problem of evil. Southard was for many years a member of Royce's seminar at Harvard. Like all New Englanders, he was greatly influenced by Royce's conception of evil. At the same time he was by temperament a veritable second William James and his opinions tended to fuse the two widely different attitudes of these men. For him evil was a very real thing in the world, whatever name it is to be given. He very poignantly punctures the Christian Science delusion of optimism by pointing out that if that doctrine was to fall back upon healers and Christian Science sanatoriums for the treatment of "error," this special form error which most of us call disease is not particularly elucidated or benefited by being rechristened.

Rather than involve himself in the ambiguous maze of dialectic entailed in Royce's conception of evil Southard falls back on the pragmatic doctrine that the social worker and the physician need not quibble as to the philosophical status of evil so long as certain painful moments for which a remedy is at hand present themselves to some individuals. He grants that there are many who feel no urge to attack these evils and for whom therefore, in one sense, these evils do not exist. He contrasts these two points of view and compares them to St. George and Sir Galahad, dragon slayers and Grail hunters. He concedes (to the Freudians?) that unconscious motives may determine the choice of one or the other of these attitudes.

"Nor should we wish to swerve these zealots of the Grail from their goal . . . . (for the rest of us) evil is easier to perceive than good is even to conceive. . . . . We should, therefore, take advantage of this ingrained destructive trend and endeavor in the first instance to destroy definite concrete and observable evils rather than to try to construct indefinite, abstract, hardly conceivable good. Let the proximate task of evil destruction be accomplished and the ultimate task of constructive goodness will shortly follow. The formula might run "Get the grail, but first slay the dragon."

Slaying the dragon with the aid of the trained social worker, guided by the psychiatrist, is the theme of this book. It is a presentation of the

nature, sphere, possibilities, technique, and results of social work as applied in the field of psychiatry. One hundred cases from the files of the Boston Psychopathic Hospital, of which Southard was the founder and the first director, are used to illustrate this thesis. They are presented not from the detailed medical standpoint but as the facilitated adjustments of psychiatrically studied patients, with particular reference to the function of social service in this rehabilitation. They are presented in schema and with comments wholly characteristic of the brilliant and inimitable Southard. All of the four "new ideas" of a conceptual sort which Cabot thinks Southard may be said to have contributed are embodied in the schema of the presentation: the idea of the neuropsychiatrist; the idea of the psychiatric social worker, the diagnostic scheme of the Kingdom of Evil, and the idea of orderly exclusion in diagnosis.

As a logician, Southard believed that definition was the greatest science in the world. He believed that merely classifying things and deciding as to their relative rank as genus or species or family was in itself some elucidation of their nature. So he here introduces his classification of evils. He takes the position that the dragons which dragon slayers feel impelled to slay, are in general of five general sorts. They are, the Morbi, Errores, Vitia, Litigia, Penuriæ, *i. e.*, disease, ignorance, vice, legal entanglements and poverty. These five evils are each represented by an organized profession of dragon slayers: Physicians, teachers, ministers, lawyers, and social workers. The five families of evil are presented in this book as various phases of the psychiatric case as seen by the psychiatrist and as treated in the facilitation of their social adjustments by the social worker.

Southard had developed a few years before his death an exceedingly practical and valuable condensation of the psychiatric entities which had been so disconnectedly scattered, and had arranged all the known forms of mental disease by genus and species within eleven great families or major groups. These were, in order, first, the mental diseases dependent upon syphilis for their major etiology; secondly, the states of feebleminded-ness, third, the epilepsies; fourth, diseases caused by and causing drug addiction; fifth, mental diseases directly dependent upon brain diseases such as brain tumor; sixth, deliriums associated with bodily disease; seventh, mental diseases associated with old age; eighth, the Schizophrenias (dementia præcox); ninth, the cyclic recurrent emotional diseases (mania and melancholia); tenth, the psycho-neuroses, and eleventh, the miscellaneous group. In his preceding book on Shell-shock he used this nosolgy to simplify his presentation of the various types of cases, and this he does again in the present book.

Southard has yet another logical arrangement to present, namely, that of his conception of the divisions or spheres of social work, a division as between public, social, and individual activity. Thus a psychopathic public nuisance is given as an example of a sphere for public social adjustment, an industrially disabled alcoholic as a social problem, and a shell-shock case as an individual problem.

Finally Southard ingeniously develops the inductive possibilities for the various combinations of these three social work spheres as well as the five major forms of evil. On this skeleton the hundred cases are hung.

A review would not be complete without a word about the junior author whose indefatigable efforts not only supervised the social service activities which are reported in the book but who personally, to my knowledge, kept on file, sorted, revised and edited much of the minutiæ which is presented. Dr. Southard depended very largely on Miss Jarrett for the development of this field of therapy. Her work, as every Boston physician knows, justifies this faith.

A final word should be said about the appendices. Roscoe Pound, dean of the Harvard Law School, writes a note upon legal entanglement which every lawyer ought to read. It takes up the theory, with examples, of the evils of protracted litigation and of conviction of the innocent. Dr. Frankwood E. Williams contributes a chapter on legislation in relation to mental disease, a function for which he is well fitted as Director of the National Committee for Mental Hygiene. Social service forms as in use in the Boston Psychopathic Hospital, together with amazingly detailed social case history records of three cases, complete the appendix.

KARL A. MENNINGER, Topeka, Kansas.

The New Psychology and the Teacher. By H. CRICHTON MILLER. (*New York: Thomas Seltzer, 1922.*)

H. Crichton Miller addresses his book to educators, parents, and those interested in the education of children. It is not primarily for the medical profession. In it he deals with two main topics: One with certain general phases of the mental development of the child, considered in chapters one, two, three, and ten, the last. The other chapters are a brief exposition of modern psychopathology as developed by Freud, Jung, and a brief reference to Trotter.

To the reviewer, the chapters first mentioned, which one feels are more strictly Crichton Miller's own, are by far the best. The chapter entitled "Authority and Suggestibility" is excellent. Miller shows here what the abuse of authority may do to the mind, an abuse, by the way, which, particularly in the European countries, has a long history not flattering to our ancestors. The remarks which he makes about suggestibility, a factor in mental life which after all, we have rather neglected, particularly in children, are clear and illuminating. The chapter on "Reality and Phantasy" is likewise excellent, and while the material is not new to modern psychiatrists, the bearing of phantasy in the child's mental development is shown in an interesting light.

Certain of the remaining chapters, namely those on the "Emotional Development of the Boy and the Girl," "Unconscious Motives," "Mental Mechanisms" and "Dream Symbolism," the reviewer feels less certain about. If it is true that "a little knowledge is a dangerous thing," this objection can be made to these chapters. Teachers and parents through

these few pages may get but a very superficial and possibly distorted view of what the writer means by such things as the censor, the introvert, the extravert, sublimation, compensation, projection, transference, homo-sexuality, hetero-sexuality, dream symbolism, and a number of other topics. Will the knowledge which they receive in this way be of great benefit to them, or rather, to the children with whom they come in contact? Moreover, this material is presented with a degree of finality which will not be acceptable to all psychopathologists in this field. Is it not better, if one is going to present this material to the laity at all, to inform them that part of the subject matter is controversial, and subject to revision and modification?

The material with which psychiatrists are less familiar is contained in the first three chapters, and in the last chapter of the book. These can be read to great advantage, and as stated above, seems to express Crichton Miller's own thoughts on the subject dealt with. With this part of the book can be read with interest a book written in this country which may not have come to the attention of most psychiatrists, namely "Character Training in Childhood," by Mary S. Haviland. This latter book fits in many ways with many of the things which Crichton Miller has said in his opening chapters, and both of them deal with a topic which is certain to receive attention from psychopathologists, teachers, and psychologists during the next decade.

SANGER BROWN, II.

Commonwealth of Massachusetts. Annual Report of the Commissioner of Mental Diseases for the Year ending November 30, 1921. (*Boston: Wright and Potter Printing Co., State Printers, 32 Derne St.*)

This report contains the usual statistics and information relative to the institutions of Massachusetts. Especially noteworthy is the passage of an act providing for investigation by the department of mental diseases as to the mental condition of persons held for trial. It is believed that by this measure the expense of a trial may be saved in many instances. These examinations will be made by the physicians of the state hospital service and a psychiatrist not so connected. An act was also passed requiring all physicians seeking state registration to pass an examination in psychiatry. The formation of a division to examine prisoners, backward children, and to do other research work is recommended. There is much of interest in this report.

W. R. D.

Medizinische Psychologie. By DR. ERNST KRETSCHMER. (*Leipzig: Georg Thieme, 1923.*)

Ueber Hysterie. By DR. ERNST KRETSCHMER. (*Leipzig: Georg Thieme, 1923.*)

The name of Dr. Kretschmer brings at once to mind his interesting and unusual monograph which was published by Springer, in Berlin, some years ago and which was entitled "Korperbau und Charakter." Clearness of thought as well as the great mass of clinical material involved in the

problems discussed, which stood out so clearly in this former monograph, are the elements that strike the reviewer most forcibly in reading through the two smaller books that are at present before us. It seems a pity that works of such value as these should be brought out on such poor paper and in such a cheap setting. Those of us, however, who know the tremendous difficulties under which German publishers are laboring at the present time, will find in this no cause for criticism but rather a reason for congratulating the publishers of these two works, on their being able to bring them out and to put them on the market at all. Only those of us who are in touch with German or Austrian men of Science, realize the bitter poverty that forces them to economize at every step. One gets some conception of what conditions are when one receives a letter from one of the most important criminal jurists in Germany, who is forced for economy's sake to enclose his letter in an envelope that has been already used, by scratching out the first address on the front of it and addressing it to his American correspondent by writing across the back.

Dr. Kretschmer's "Medizinische Psychologie" appears practically in the same form as in the first edition that was published last year and reviewed in this Journal in April, 1922. The author has been forced to keep his work within very definite limits and he has been compelled often to sacrifice completeness of treatment to the ever present necessity of brevity and conciseness. He would not have helped the reader to any great extent if he had enlarged certain chapters on the psychology of memory and of the senses, if in order to do this, he had left out some of his valuable clinical material. The matter that he has felt bound to exclude for the sake of brevity, is easily accessible in other books of reference. In his introduction he gives a very valuable statement as to the type of psychology which the ordinary medical student or general practitioner needs and which is seldom, if ever, given to either, in books or in medical schools. He says, "The physician in his practice feels the need of a treatise on a type of psychology that is rooted in the problems of his medical practice and that can help him in the practical difficulties of his profession. He needs also a psychology that looks over the four narrow walls of professional interests, and that casts, at least, a casual glance into the more distant mental fields of ethical and esthetic problems." Dr. Kretschmer's Book is written in the hope of providing the physician with this type of a brief compendium of medical psychology. The chapters deal first with the mind and the history of its development, then with the mental apparatus itself, then with instinct and temperament, and finally, with the different types of personalities and types of mental reaction. The book ends with a very valuable Fifth Division called "Practical Medical Psychology," that deals, among other things, with the whole question of mental tests, commitments and medico-legal reports, as well as with the various methods of psycho-therapy. Dr. Kretschmer's style is so clear and so simple, that even the physician who reads German with difficulty can dip into this book here and there and find valuable suggestions on almost every page.

Dr. Kretschmer's other small book on "Hysterie" should be read by every physician whether he be specialist or general practitioner from the first page to the last. It is so clear, it contains so much interesting clinical material and explains in such simple language, ideas and conceptions that are frequently used by other writers as mere counters in a game or as mysterious magic words, only understandable by the initiated, that it is refreshing to read, as well as intensely instructive. He treats first of the instinctive life of hysterical patients and then of the psycho-physical dynamics of hysteria in general. Especially interesting is the discussion on page 27 of the relation between hysteria and the sexual instinct. Here, the author holds a safe, middle way between the excesses of statement that are so common in this connection. Then on page 77, there is a very illuminating case history which illustrates the double will and the ensuing conflict in a definite hysterical case. Finally, on page 99, there is a definition and a discussion of the "Concept of Repression" that will be helpful to everyone who has been led more or less astray by the excessive statements of certain psychiatric doctrinaries who are more interested in describing their own concepts of "Repression" than in giving a clear, understandable picture of what repression really is and of how it works.

On the whole, those of us who try to keep pace as best we can with current psychiatric literature, may be very grateful to Dr. Kretschmer for these two publications, while others who are forced to read less and who yet may know much more, will find in these books, an interesting statement of what they have already perhaps formulated for themselves and a new knowledge of many important things at which they have been only able to guess.

JOHN R. OLIVER

In Memoriam.

HERBERT BURR HOWARD.

Dr. Herbert Burr Howard died March 6, 1923, near Lynchburg, Va., on the homeward journey after a month's trip through Florida in his automobile. The end came suddenly as he was putting on chains to make a stretch of bad road. The shock to wife and friends is hardly imaginable, although, on reflection, they might have been forewarned by previous attacks of angina pectoris covering a period of years, but less frequent and severe of late, had not the unflinching courage, characteristic of the man, always carried to the front an appearance of strength and endurance which allayed apprehension which might otherwise have been disquieting.

Dr. Howard was born in Fitchburg, Mass., March 24, 1855, the son of Luther Grant and Sarah Burr Howard, sturdy New England parentage. As a boy he lived and worked on his father's farm at Paxton, acquiring a love of the soil and insight into farming which added much in after life to his enjoyment and the advantage of institutions which he administered. He attended the nearby military academy at Leicester, but graduated from the Worcester high school. He was 22 years of age on entrance to Harvard University where he took his A. B. degree in 1881 and M. D. in 1884. More mature in years than most of his college mates, large and powerful in build, he was a natural selection for the class and University crews, an association always affording him much satisfaction.

During his medical course the notorious Butler investigation of the state almshouse, afterwards the state infirmary, at Tewksbury, Mass., was in progress. The men's nursing service became demoralized, threatening neglect of many sick and needy who crowded the wards of that great institution. The appeal of its resident physician to medical students to help in the emergency had quick response from Howard as did many like appeals subsequently during a life of altruistic service. He acted as nurse, often as physician, during the latter part of that trying period, gaining inside knowledge and experience which gave him that sympathetic understanding of conditions and relations of patients and nurses in a great, mixed public establishment, which contributed much to his eminent success in hospital administration.

Immediately after graduation in 1884 he returned as assistant physician to the state infirmary, where he remained until 1897 continuously with exception of two years in private practice at Idaho Springs, Colorado. He became superintendent in 1891 before Tewksbury had lost the savor of the almshouse and the distrust created by the Butler scandals. Its regeneration had begun under Dr. Fisher, but Dr. Howard, knowing through experience as nurse and physician the whole complex situation, was the one man to complete the work. Gradually an old, wooden fire trap was replaced by substantial buildings of brick and stone, simple, well arranged and economical. A receptacle housing in confused association the state poor, sick or well, crippled and injured, infected with contagion, children and adults, prospective mothers, insane and feeble-minded, tramp and petty criminal, almost any state ward not otherwhere receivable, such a receptacle was transformed into a well classified and organized hospital, having separate medical and surgical services well equipped with laboratories and facilities for diagnosis and treatment; maternity and children's hospitals, mental department, grouping of the well apart from the sick, and removal of the criminal type.

Howard loved the practice of medicine. His scientific instincts were keen. Probably he would not have accepted the superintendency had he anticipated the sacrifice of his leadership in medicine and surgery. A deep disappointment of his life came when he realized that good administration is the only foundation on which the best medical and scientific work can be wrought. The sacrifice was made only because the obligations which he had assumed and the reconstruction of an otherwise almost hopeless situation required it. His love and loyalty to Tewksbury never weakened. He had a vivid and comprehensive concept of possibilities in its development into a great medical research and treatment center for state beneficiaries, especially in solving problems of public health and hygiene. There were moments of regret in after years that his life work had not held him there.

In 1897 the trustees of the historic Massachusetts General Hospital, conservative and proud of its traditions, sought a man to reorganize its departments and map out its future. The chairman of the nominating committee said there was a man at Tewksbury worth considering, but another member remarked, "Tewksbury has not a pleasant sound." Finally, the decision was left to the

chairman and the third member of the committee, a man of large affairs accustomed to deal with big men. One day the two dropped in unannounced at the state infirmary. Dr. Howard took them about, explaining in his simple, forceful manner the work of the institution. Midway through, the doubting member drew the chairman aside and said, " This is a real *man*. We must have him."

The Massachusetts General Hospital *then* and *now* tells the story of his service. The present splendid hospital is a development substantially according to the plan which he matured during his first two years in charge. When a new task called him away at the end of eleven years his guiding hand was replaced by another of his choice and training.

In 1908 when the trustees of the Peter Bent Brigham Hospital wanted a man to plan and organize a new hospital according to best ideals and most advanced standards, they turned to Dr. Howard. He abhorred monumental construction and knew the vast importance of ample endowment to put into facilities for medical research and treatment of patients. A million dollars was, by his insistence, cut out of the cost of that hospital as originally proposed, and yet there was built a hospital which a physician of international recognition as an authority has pronounced the best adapted for doing the work of nurse and physician and promoting the comfort of patients within his knowledge.

Dr. Howard desired earnestly to take active part in the world war, but was prevented by physical disability. He continued at the Peter Bent Brigham Hospital beyond the retirement limit to help a younger man complete his war duty.

Throughout a busy life, crowded with exacting and sometimes burdensome details, he took time for public service. It was his lot to have to face problems requiring initiative and constructive thought. Such presented in 1898 when he became a member of the new State Board of Insanity. With his colleague, Dr. Jelly, he was the backbone of the state care movement which removed the insane and feeble-minded from municipal and county poor houses to state hospitals. That policy led to the building of the Gardner State Colony, whose trustees needed his leadership in developing a new type of institution. He left the state board for that purpose, but later returned and eventually became its chairman.

In 1908 his broad experience and common sense were invaluable to the Board in formulating a comprehensive system of state pro-

vision and treatment for the insane and feeble-minded, which has been closely followed in subsequent progress. A conspicuous result of the policy thus inaugurated was the reorganization of the Boston State Hospital and the establishment of the Boston Psychopathic Hospital.

Greater than these services was his influence upon trustees and executives of the state hospitals. His presence on the Supervising Board was a guarantee of the "square deal." Although he was often their critic, his criticism was always constructive and sympathetic with their difficulties. His inspiration, encouragement and "horse sense" stimulated and sustained the superintendents and medical staffs.

He had to a remarkable degree the faculty of seeing the good, evaluating the bad, and getting out the *best* in everybody. Young men, in whom he had an abiding interest, developed and rounded out under his training. Today they constitute a group of administrators in many places, whose ideals were his and whose achievements are setting the standards of the best institutional management.

Dr. Howard stood always for the definite, clean and right in moral quality, worth while, altruistic, humane. He was a rock to rally about and work with persistent energy and co-operation.

Finally, his retirement was possible in 1919. Although the family home was kept at Reading, Mass., his chief interests centered about his Alstead farm on the beautiful hillside among the New Hampshire mountains. Even here a serious purpose was pervasive in the attempt to find a practical way of raising turkeys in the hope of being copied by his neighbors and others until the New England turkey should be restored to its own.

What pleasure he took in those fields, plowing, mowing, tending the great brood of young turkeys, while the old farm house was being renovated into a dwelling with every convenience and comfort! His health improved steadily in these outdoor pursuits. Here was revealed the real Howard—simple, warm-hearted, steadfast in friendship, genuine and lovable. His place in our midst will always be vacant, but the memory of him is still ours.

Dr. Howard married in 1886 Dr. Margaret Emily Pagelsen, then superintendent of the New England Hospital in Boston. He is survived by his widow, their daughter, Sarah Ernestine, a physician formerly at the Johns Hopkins Hospital, and their son, Charles P. Howard, a lawyer practising in Boston and member of the Massachusetts Senate.

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